GRADE: IX QUESTION BANK SUBJECT:ENGLISH Section A:Reading 20M

I. Read the passage given below and answer the questions that follow: **8M**

The Amazon is the world's largest tropical rainforest. It is roughly the size of the continent of Australia and covers an area of nearly 2.8 million square miles. The Amazon rainforest gets its life from the majestic Amazon River which runs through the heart of the region. Amazon is also the second largest river in the world. The rainforest is simply the drainage basin for the river and its tributaries. The vast forest consists of four layers, each featuring its own ecosystems and specially adapted plants and animals.

The forest floor is the lowest region. Since only two percent of the sunlight can filter through the top layers to the understory very few plants grow there. The forest floor, however, is rich with rotting vegetation and bodies of dead animals which quickly break down and get integrated into the soil as nutrients. Tree roots stay close to these available nutrients and decomposers such as millipedes and earth worms use these nutrients for food.

The understory is the layer above the forest floor. Much like the forest floor, only about 2 to 5 percent of the sunlight reaches this shadowy realm. Many of the plants in the understory have large, broad leaves to collect as much sunlight as possible. The understory is so thick that there is very little air movement. As a result, plants rely on insects and animals to pollinate their flowers.

The layer above the understory is the canopy. This is where much of the action in the rainforest occurs. Many plants growing in this layer have specially adapted leaves with drip tips. Drip tips allow water to flow off the leaves and thus prevent mosses, fungi and lichens from infecting the leaves. Leaves in the canopy are very dense and filter about 80 percent of the sunlight. The canopy is where the wealth of the rainforest's fruits and flowers grow.

Answer the following questions.

1. Which is the world's second largest river?

2. How important is the Amazon River for Amazon rainforests?

3. Why do very few plants grow in the understory of the rainforests?

4. Why is there very little air movement in the understory?

5. What is the layer above the understory called?

6.What is the special adaptation of the plants growing in the canopy?

7.What gives life to the Amazon rain forest?

8. Find the word from the passage which means 'grand'.

2.Read the passage given below and answer the questions that follow.

Many years ago, when the art of stunting plants was quite unheard of except in remote areas of India, Buddhist monks in isolated monasteries in Tibet stunted trees like oak and orange. They watched with excitement the trees flowering and bearing fruit regardless of this 'deformity'. The trees looked so artistically beautiful and enchanted everyone. Some Chinese monks learnt the art from Tibetan monks and soon 'Bonsai' making became a popular hobby and art in China and every garden had at least six bonsais. India and China claimed rights to the art till Japan followed enamoured by its beauty. Today Japan leads in Bonsai making and has invented new methodologies to make the plants look aesthetic and artistic. The most beautiful is the cherry blossom that is breathtakingly attractive. Bonsais need constant pruning, watering, shaping and correct environment. The trees can be planted in colorful containers of your choice.

Numerous schools have mushroomed where the art is taught and cultivated. Best known among them is the Indian Bonsai Association. India has great demand for bonsais. Hotels, homes, farm houses, restaurants and guest houses use

these decorative plants to adorn their lobbies, dining halls and drawing rooms. It is aptly said that a thing of beauty is a joy forever. Indeed the bonsai lasts in one's imagination long after the plant has lived its life span.

Bonsai gardeners use methods including wiring branches, extreme pruning of roots and branches, root binding, grafting and custom soil and cinder mixtures. But perhaps the most important element of all is patience. Instructions for achieving the 'roots over rock' effect give insight into the work of a bonsai artist: trim the roots, place the rock, bind roots, then re-pot and wait for two years. Often a bonsai is created by many hands over the years – a highly priced tree is one where the hand and the ego of the artist become invisible as in the Zen concept of 'artless art'.

Questions

1. Who first began to stunt trees and plants?

2. Which bonsai is breathtakingly beautiful?

3. Which country leads in the art of stunting today?

4. How can we take care of bonsais?

5. Name a few places where bonsais are used for decoration

6. Why does the writer say 'a thing of beauty is a joy forever'?

7.How is the' roots over rock' effect achieved?

8. The word 'enamoured' means ……..In 1977,

3.Read the passage given below and answer the questions that follow.

Satyajit Ray started shooting a historical film based in Awadh of 1856, in the reign of Nawab Wajid Ali Shah. It falls into our discussion of 1857 films because of its plot centering the British takeover of Awadh, which has been cited as one of the causes that triggered the 1857 uprising in the region. The film has two parallel narratives, one based on Munshi Prem Chand's short story of two chess-playing jagirdars, who remain absorbed in their games of chess while the British moved into Lucknow, the other dramatizing the takeover of Oudh by the British under General Outram.

2. The film has a strain of nationalist sentiment in its concession of the treacherous ad of Daihousie's takeover of Awadh, the frustrations of the Nawab, and Outram's own discomfort with the course of events. Yet, it is a new genre of the 1857 historical with its overt subtext of historicity, and its departure from the established elements of the historical genre that were available in Jhansi Ki Rani——the film builds on research and recorded history and dispenses with the larger-than-life element established by the genre. Rather than intense engagement as called for by the heightened use of character and action in the conventional historical, the voiceover punctuating the diegesis gives the sense of a fait accompli establishing distance from the unfolding historical events.

3. Ray was India's most famous filmmaker and his films automatically generated a series of assumptions about the quality and value of the product. Shatranj Ke Khilari was meticulously researched and period reconstruction undertaken in the minutest of detail. Filmfare, which had been following the shoots since its 7-20 January 1977 issue, for instance, revealed in its 18 Febmary-3 March issue that actor Amjad Khan, who plays Wajid Au Shah in the film, was being trained in Kathak dance, for scenes in the film that had Wajid Au performing the Raas-leela with his nautch girls. Cooper mentions that Ray's research on Wajid Ali Shah had revealed, according to Ray, Wajid's "extraordinary character", which "made the king a figure worthy of film treatment." (Cooper, 198).

4. In response to a critic's comments in the 22 October 1978 issue of The Illustrated Weekly of India that Ray had been "Orientalist" in his depiction of Wajid Au as weak, ineffectual and effeminate. Ray himself declared many of the sources he had consulted while making the film in the 31 December, 1978 issue of the magazine. These included among other contemporary

sources, Abdul Halim Sharar's Guzesta Lucknow, which provided both the socio-cultural details and a portrait of Wajid in Lucknow and Calcutta, the text of Wajid Au Shah's Rajas, where he plays Krishna, and the young Wajid's personal diary, Mahaj Khana Shahi (Cooper, 199).

(1) What is the historical background of the film produced by Satyajit Ray?

(2) What are the main events included in the film?

(3) Mention the two parallel narrative in the film?

(4)Why were Satyajit Ray's films followed very keenly?

(5)Whose character did actor Amjad Khan play in the film?

(6) In what way was Satyajit Ray's film Shatranj Ke Khilari different from conventional historical film.

7. Who criticized Ray as Orientalist and why?

8. Find words in the passage that mean the following: (2 marks)

(a) very carefully (Para 3) (b) womanish (Para 4)

4.Read the following passage and answer the questions that follow.

A few countries already use powerful electromagnets to build high speed trains. These trains are called maglev trains. Maglev is the shortened form of magnetic levitation. Maglev trains work on the principles of magnetism and float over a guideway.

Magnets have south and north poles. Opposite poles of two magnets attract whereas like poles repel each other. This is the basic principle behind electromagnetic propulsion. Electromagnets are similar to other magnets but their magnetic properties are temporary. They can attract metal objects. It is easy to create a small electromagnet. You only have to connect the ends of a copper wire to the negative and positive ends of an AA, C or D-cell. This creates a small magnetic field around the cell. If either end of the wire is removed from the cell, the magnetic field will also disappear.

The maglev train system works on the principles of electromagnetism. There are three components to a maglev train system: a large electrical power source, a track with metal coil lining and train cars with huge guidance magnets attached to their underside.

The maglev train is different from a conventional train in that it does not have an engine. At least it does not have the kind of engines that pull train cars along steel tracks. It does not consume fossil fuels either.

The magnetized coils running along the guideway (track) repel the powerful magnets on the underside of the train. This repulsion causes the train to levitate 1 to 10 cm above the guideway. After levitating the train, power is supplied to the coils within the guideway walls. This creates a unique system of magnetic fields that push and pull the train along the guideway.

Since maglev trains float in the air, there is no friction between the train and the track. This lack of friction and the aerodynamic design of these trains allow them to reach speeds of over 500 kilometer per hour. At that speed, you can travel from Rome to Paris in less than 2 hours.

Japan and Germany pioneer research in the maglev train technology. They have already built their prototypes and are in the process of testing them. Transrapid is an electromagnetic suspension system developed by German engineers. The idea of maglev transportation has been in existence for over a century. The first commercial maglev train made its debut in Shanghai, China in 2002. This train was developed by a German company. Right now the Shanghai Transrapid line connects Longyang Road station and Pudong airport. China is planning to extend this line to Hangzhou by building a 99 miles guideway.

Several other countries are also planning to build their own maglev train system, but right now the Shanghai maglev train is the only commercial maglev line.

Answer the following questions

1. What are two main differences between maglev trains and conventional trains ? ……

2. Why are Maglev trains environment friendly ?

3. Which are the two nations that lead the research in maglev train technology ?

4. What are the two factors that help maglev trains to achieve high speeds ?

5. Which is first country to have a commercial version of the maglev train technology

6. What allows Maglev trains to reach a speed of over 500km?

7. What is the route of the train in Shanghai at present ?

Find words in the passage that mean

a) forward movement: …….

b) float in the air: ……..

c) profit-oriented: ……..

d) traditional: ……

5. Read the passage given and answer the following questions:

Thomas Alva Edison was an American inventor and businessman who developed many devices that greatly influenced the life around the world. He lit up the world with his invention of electric light. Without him, the world still might be a dark place.

However, the electric light was not his only invention. He also invented phonograph, motion picture camera, and over 1200 other things. About every two weeks, he created something new.

Thomas Alva Edison was born in Milan, Ohio, on February 11,1847. His family moved to port Huron, Michigan, when he was 7 years old. Surprisingly he attended school for only two months. His mother, a former teacher, taught him a few things, but Thomas was mostly. his natural curiosity led him to start experimenting at a young age with electrical and mechanical things at home.

When he was 12 years old, he got his first job. He became a newsboy on a train that ran between port Huron and Detroit. He set up a laboratory in the baggage car of the train so that he could continue his experiments in his spare time. Unfortunately, his work experience did not end well. He was fired when he accidentally set fire to the floor of the baggage car.

Thomas then worked for five years as a telegraph operator, but he continued to spend his spare time on the job of conducting his experiments. He got his first patent in 1886 for a voice recorder run by electricity. however the voice recorder was not a success. In 1870, he sold another invention, a stock-ticker, for $40,000. A stock-ticker is a machine that automatically prints stock prices on a tape. He was able to build his first shop in Newark, New Jersey.

Thomas Alva Edison was totally deaf from one year and hard of hearing in other, but thought of his deafness as a blessing in many ways. It kept the conversations short, so that he could spend more time for his work

(a)Who was Thomas Alva Edison?

(b)Which invention of Thomas Alva Edison changed the world from darkness to light?

(c)What was the frequency of Thomas's invention?

(d)What trait in Edison proved useful to his work?

(e)What was Edison's first job?

(f)How did Edison make use of his spare time on the train?

(g)When did Edison get his first patent and for what invention?

(h)Why did Edison think his deafness was a blessing?

1. Read the following passage and answer the questions that follow: 12M

The apologists of terror tell us that the root cause of terrorism is the deprivation of national and civic rights, and the way to stop terror is to redress the supposed grievances that arise from this deprivation.

But the root cause of terrorism, the deliberate targeting of civilians, is not the deprivation of rights. If it were, then in the thousands of conflicts and struggles for the national and civil rights in modern times we would see countless instances of terrorism. But we do not.

Mahatma Gandhi fought for the Independence of India without resorting to terrorism. So, to the people of Eastern Europe in their struggle to bring down the Berlin wall and Martin Luther King's campaign for equal rights for all Americans eschewed all violence, much less terrorism.

If the deprivation of rights is indeed the root cause of terrorism, why did all these people pursue their cause without resorting to terror? Put simply, because they were democrats, not terrorists. They believed in the sanctity of each human, were committed to the ideals of liberty and championed the values of democracy.

Those who practice terrorism, do not believe in these things. In fact, they believed in the very opposite. For them, the cause they espouse, is so all encompassing, so total, that it justifies anything. It allows them to break any law, discard any moral code and trample all human rights in the dust. In their eyes, it permits them to indiscriminately murder and maim innocent men and women and lets them blow up a bus full of children.

There is a name for the doctrine that produces this evil. It is called totalitarianism. Only totalitarian regime, by systematically brain washing its subjects, can indoctrinate hordes of killers to suspend all moral constraints for the sake of a twisted cause. That is from its inception totalitarianism has always been wedded to terrorism – from Lenin to Stalin to Hitler to the Ayatollahs to Saddam Hussein, right down to Osama Bin Laden and Yasser Arafat.

It is merely that the goals of terrorism do not justify the means they choose, it is that the means they choose to tell us what true goals are. Those who fight as terrorists, rule as terrorists. people who deliberately target the innocent, never become leaders who protect freedom and human rights. When terrorists see power they invariably setup the darkest of dictatorships – whether in Iraq, Iran, Afghanistan or Arafatistan.

(a) What according to some is the root cause of terrorism? How can it be stopped? **8M**

(b) Proof that the root cause of terrorism is not the deprivation of rights.

(c) Mention two international personalities who fought for rights without resorting to terrorism.

(d) What are believes of terrorists?

(e) Find words from the passage that mean the same as each of the following. **4M**

(i) Hard ship due to loss or adequacy (para 1)

(ii) Aiming (para 2)

(iii) Renounce (para 6)

(iv) Intentionally (para 7)

2. Read the passage given below and answer the questions that follow:

Certain foods can rejuvenate and activate the body, inducing even stable mental health and advisory positions about the remarkable healing powers of food. To recognize, isolate and increase the intake of foods that have large amounts of disease fighting antioxidants, to identify the two kinds of fats; the beneficial omega 3 and omega 6, in which foods are commonly used; to alienate allergies caused by foods that work against human metabolism.

Even oxygen has certain toxic forms called oxides, which spark off lethal reactions that have been linked to sixty odd chronic diseases, one of which is ageing. Antioxidants minimize the effects of the oxidants. Plant foods, thankfully are packed with antioxidants agents. Scientists are now researching into an antioxidant "status report" based on individual blood test;if the antioxidants are funnying low,specific food should be prescribed to boost the levels.

Fats comes in two types --- Omega-3 which is found in marine life and Omega-6 which is concentrated in vegetable oils. The first is good, the other is plain and rotten.

The best source of Omega-3 is preferably sea fish. But frying it in Omega-6 rich vegetable oil kills all its goodness. The third imperative in codifying food health is through identifying irritants.

While some foods cause obvious and easily identified allergies like rashes, others cause either delayed reactions or mirror irritants which could, none the less, be a serious deterrent to general well being. Obstinate amoebiosis, nagging depression and persistent headaches are the most obvious symptoms. Food plays a dramatic role in alerting and find tuning of brain cells to give them sharper concentration. An innocuous combination of red wine and cheese can trigger off migraine.

Ageing brains have low levels of thiamin, which is concentrated in wheat-germ and bran, nuts , meat and cereals. More good brain-food comes from liver, milk and almonds, which arew rich in riboflavin and extremely good for memory. Carotene, available in deep green leafy vegetables and fruits, is also good for geriatric brains so it is a high iron diet. It can make old brains gallop hyperactively like young ones. Iron comes from greens, liver, shell-fish, red meat and soya beans. Sea food, very high in iron, is an excellent diet supplement.

The new England general of medicine reported in its main 1985 issue that thirty grams of fish a day could result in dramatic drop in the chances of acquiring cardio vascular disease.

(a) What are oxides? What effect do they have on human body?
(b) Why are antioxidants necessary? Which foods are rich in antioxidants?
(c) Where is omega-3 found? How can good effects of omega-3 fats be killed by omega-6 fats?
(d) What foods are necessary for geriatric brains?

(e) Write antonyms of the given words from the passage.

(i) Feeling of togetherness (para 1)
(ii) Oxidants (para1)
(iii) Marked (para 5)
(iv) Increase (para 7)

3. Read the passage carefully and answer the questions:

Everybody wants to succeed in life. For some, success means achieving something they want or desire. For many it is the name, fame and social position. Whatever be the meaning of success, it is success which makes a man popular.

All great men have been successful. They are remembered for their great achievements. But it is certain that success comes to those who are sincere, hardworking, loyal and committed to their goals.

Success has been man's greatest motivation. It is very important for all. Success has a great effect on life. It is brings pleasure and pride. It gives a sense of fulfillment. It means all around development. Everybody hopes to be successful in life. But success smiles on this who have proper approach, planning, vision and stamina. A proper and timely application of all these things is bound to bare a food. One cannot be successful without cultivating these certain basic things in life. It is very difficult to siotou on a journey without knowing ones goals and purposes. Clarity of the object is must to succeed in lie. A focused approach woith proper planning is certain to bring success.

Indecision and insincerity are big obstacles in the path of success one should have th capability, capacity and resources to turn ones dream into reality. Mere desire cannot bring you success. The desire should be weighed against factors like capability and resources. This is the basic requirement of success. The next important thing is eagerness, seriousness and urge to be successful.it is the driving force which decides the success. It is the first step on the ladder of success.

One needs to pursue ones goals with all one sincerity and passion. One should always be in high spirit. Lack of such spirit leads to an inferiority complex we on the which is big obstruction on the path of success. Time is also a deciding factor. Only the punctual and committed have succeeded in life. Lives of great are examples of this. They had all these qualities in plenty which helped them rise to the peak o success.

Hard work is one of the basic requirements of success. There is no substitute for hard labour. It alone can take the peak of success. Every success has a ratio of five percent inspiration and ninety five percent perspiration. It is the patience, persistence and perseverance which play a decisive role in achieving success. Failures are the pillars of success as they are our stepping stones and we must get up and start again and be motivated.

(A)On the basis of your reading, answer any four questions given below:(in 30-40 words)

(i) to whom does success come certainly?

(ii)What are the basic things in life we need to achieve success?

(iii)What did great men have in plenty to rise to the peak of success? Give any two examples.

(iv)What is the one basic requirement of success?

(v)Explain "Failures are the pillars of success."

(B) On the basis of your reading of the passage, fill in the blanks given below with appropriate phrases/words:(any two)

(i) _____ plays a decisive role in achieving success

(ii)Goals must be pursued with _____ and _____.

(iii) Ratio of success is _____ inspiration.

(C) Find out the words from the passage that mean the same as the following:(any two)

(i) Endurance (para 2)

(ii) Obstruction (para 4)

(iii) Motivation (para 5)

Section B Writing and Grammar 30M

III. 1. You saw a girl working as a maid while going to school today. Write a diary entry expressing your views on child labor. Write this entry in about 100 to150 words. 8 marks

2. You visited a Science Fair in a nearby school. Record your experience in the form of a diary entry in about 100-150 words. 8marks

3.You recently participated in the All India CBSE Quiz Competition, 2020.The final was telecast over the national channel where you and your team won the quiz. Describe your feelings in about 100-150 words through a diary entry. 8 marks

4.You spent a part of your summer vacation in a village. You found that the life in the village is more close to nature which we miss in the cities. You now back home. Write a diary page about your stay in village and your feelings in about 100-150 words. 8 marks

5. Write an article on the role of media in our daily lives. Write in not more than 100-150 words. 8 marks

6. Write an article on Pollution due to Urbanization in about 100-150 words. **8M**

IV. 1. Last night I heard a noise in my room. I opened my eyes…….

Complete the story in about 150-200 words based on the beginning. **10M**

2. Two friends were passing through a dense forest. Suddenly they heard some animals screaming……

Complete the story 150-200 words. **10M**

3. It was a bright day and you were reading a book in your lawn. Suddenly a man through a bag in your garden and ran away. You called out but…….

Write a story in about 150-200 words with a suitable title. **10M**

4. Write a story developing the idea further given in the outline in about 150-200 words. Give a suitable title.

Outline: Window display in toy shop ----Diwali season--- theft---alarm sounded---no clues found---police non-pulsed---little boy spots the difference in window display leading to arrest.

10M

5. Write a short story with the ending "…from that day onwards, I never went out alone."

Use the given hints: visit to your friend's house--- reach a deserted place ---cool and calm place---palms were sweating ---suddenly followed by a ghost ---need help---story told by ghost about her accident—screamed—fainted back home-fever for three days ---unforgettable experience.

10M

V. Choose one suitable word from the given options to complete the paragraph. 4M

1.It's in the middle of the night on (a) …… edge of the world, on the fringes of civilization, where man and beast have barely left (b) …… mark, 12 people are sleeping in small nylon tents pitched in the scant shelter of the mountains. The camp is at the mercy of the elements. (c) …… are volunteers who have set up camp to help gather information on the snow leopard population. These conservationists have had very (d) ……. or no scientific training. They, along with their guides intend to assess the snow leopard's habitat in the Altai region, Siberia.

a. (i)a (ii)x (iii) the (iv) an

b.(i)theirs (ii) their (iii)his (iv) our

c.(i) This (ii) That (iii) Their (iv)These

d.(i) little (ii) few (iii)some (iv)a

2. Choose one suitable word from the given options to complete the paragraph. 4M

If all the children (a)…….. collectively, they (b)…….. suddenly informed (c)……. a circus in a neighbouring town (d)…….. which they would have been taken that very day if they had not behaved so badly.

a.(i)sinned (ii) were sinning (iii) have sinned

b.(i)are (ii) have(iii) were

c.(i) to (ii) of (iii)with

d,(i)to (ii) on (iii) for

3. Choose one suitable word from the given options to complete the paragraph. 4M

As (a)…… (matter of fact, however, all the crying (b)……. (by his cousin, (c)…… scraped her knee rather painfully (d)……. the step of the carriage as she was scrambling in.

a.(i)an (ii)the (iii)a

b.(i) did (ii) was done (iii) had done

c.(i)who (ii) which (iii) that

d.(i)with (ii)against (iii) on)

VI. Editing or omission 4M

	Before	word	After
1.A great part Arabia is desert.	part	of	Arabia
Here is nothing but sand and rock.	1._____		
The sand is hot that you cannot walk	2._____		
Over with your bare feet in the day time.			
There are springs water here and there.	3._____		
they come from deep down the ground	4. _____		
the sun cannot dry them up.			
2. For than four years, Marie Curie	for	more	than
and her husband in a large	1._____		

dilapidated wooden shed near their Paris home 2._____

It was here on September night in 1902 3._____

they finally the radioactive element 4._____

which they named radium.

3. Most of the fun and excitement in our life before word after

comes from the use our senses. Senses open up a (a) ……..

world which full of sights, sounds, smells. (b) ……

tastes and things to touch. sharpen your senses and (c) ……..

the more you use,the more enjoyable each (d) ……

of these worlds becomes for you.

	Incorrect	Correct
4.It can surprise many people that	a._____	_____
the thing like worry can be a killer	b._____	_____s
That has been proved by all medical researches	c._____	_____
that worry is cause for heart ailments,	d._____	_____

blood pressure and many other diseases.

VII. Reorder the sentences to make them meaningful. 4M

1.(a) of nature / biodiversity / the / is / variety of life forms / interact to support / a/ and / sustain / balance / the

(b) consumed / as / group / more and more of / earth's / the / resources / are / human population / the / by / being

(c) extinction / crisis / explosive / an consumption / had led / growth and/

(d) that have / earth's history / mass extinctions / the / threaten / periodically / during / occurred / the / and / to resurface

2.

(a)every/found/spiders/are/continent/on/almost/Antartica/except

(b)very/helpful/they/because/flies/other/and/insects/are/eat/they

©don't/get/caught/spiders/own/in/their/webs

(d)Robert Bruce/the spider/in/for/was/a/inspiration/great

3.

(a)drink/lots/liquids/should/we/during/to/summers/avoid/dehydrated/getting/of

(b)energetic/and/exercise/children/keep/active/extra/curricular/and/active

©attention/producing/is a/process/and/silk/close/demands/lengthy

(d)god/some/remember/only/people/distress/in

4.

(a)as/cultures/India/diverse/languages/has/well/as

(b)should/wear/we/light/in/colours//summer

©have/doctor/I/an/with/appointment/the/tomorrow

(d)baby/gave/apple/her/the/mother/a/red

SECTION- C LITERATURE 30 Marks

VIII. Read the following extract and answer the questions that follow.

(answer any one of the two extracts given)

1. **'I can still feel the surge of pride in earning my own money for the first time.'**

   (i)What does Kalam mean by "surge of pride"?
   (ii)What is the incident being referred to here?
   (iii)Who was responsible in enabling Kalam to earn money?
   (iv)What did he have to do to earn money?

   (OR)

   He came to the door of a cottage
   In travelling round the earth,
   Where a little woman was making cakes,
   And baking them on the hearth;

   And being faint with fasting,
   For the day was almost done,
   He asked her, from her store of cakes,
   To give him a single one.

   (i)What was the little woman doing?
   (ii)Why did the man come to the door of the woman?
   (iii)Where had the man come from?
   (iv)Who came to the cottage room?

2. **This is hardly what I intended. What I had meant, of course, was, that I should boss the job, and that Harris and George should potter about under my direction .."**

   (i)What is 'this' the narrator is referring to?
   (ii)What did he mean to do?

(iii)What is the meaning of 'potter'?
(iv)Why did he want to boss around?

(OR)

I will arise and go now
I hear lake water lapping with low sounds by the shore;
While I stand on the road way, or the pavements grey,
I hear it in the deep heart's core.

(i)What is the mood of the poet in the last line of the extract?
(ii)What is happening "always night and day"?
(iii)What does the poet hear deep in his heart?
(iv)Name the poet and the poem?

3. **"I was but a poor, foolish doctor. I forgot my danger and smiled feebly at myself."**

(i)Who is speaking these lines?
(ii)Why does he call himself foolish?
(iii)What was the danger?
(iv)Why did he smile feebly at himself?

(OR)

"Remember that they have eyes like ours that wake
Or sleep and strength that can be won by love."

(i)What do we have to remember?
(ii)What is common in their and our eyes?
(iii)What can be won by love?
(iv)How can we become strong?

4. **'A single bomb of this type…exploded in the pot, might very well destroy the whole path together with some of the surrounding territory'.**

(i)Who wrote these lines and to whom?
(ii)How was the writer shaken by the result of this letter?
(iii)What effect did the letter have on the receiver?
(iv)Give the meaning of the word 'territory'?

(OR)
'This broken leaden heart will not melt in the furnace. We must throw it away'

(i)Who said this to whom?
(ii)Where did they find the broken heart?
(iii)What did they do with the broken lead heart
(iv)Name the lesson and the author.

IX. Answer the following questions. **10M**

(i)What did Margie think of the pages of the book?

(ii)What is the significance of the shehnai?

(iii)What were the thoughts in Kezia's mind when she saw Mr. Mac Donalds next door?

(iv)What treat did Toto have during winter evenings?

(v)What were the values that kalam inherited from his parents?

(vi)How does the poet express futility of wars in the poem 'No Men Are Foreign' by James Kirkup.

(vii)How did Mariya Sharapoa feel when she had to leave her mother and go away?

(viii)Where was Prashant when the storm devastated his home?

(ix)What happen to the golden leaves on the statue?

(x)How does Einstein prove himself to be a man of humanitarian considerations?

(xi)How can you say that Iswaran was a fascinating story teller?

(xii)What difference do you notice in the child's behavior before and after he gets lost?

X. Answer any one of the following questions in 100 to 150 words. 8M

(i)Make a comparative study of the experiences and difficulties faced by Evelyn and Bismillah Khan in their musical journey.

(ii)Einstein was deeply shaken by the extent of destruction. What kind of destruction had shaken Einstein? Was he a true scientist?

(iii)Pateince and presence of mind are revealed by the doctor when he is confronted by a snake. Discuss.

(iv)"Once you decide to change the system, such problems have to be confronted." What system is this sentence referring to? What are such problems?

(v)Do you think the story 'Packing' is funny? Elucidate the humorous elements in it.

XI. Answer any one of the following questions in 100 to 150 words 8M

(i)How did Prashant contribute to improve the condition of the shelter?

(ii)How has O.Henry featured friendship in the story Last Leaf?

(iii)If the Happy Prince had been alive and had seen the misery of people,he would have made a lot of difference to their lives. Do you agree? Justify.

(iv)The disciple was in trouble because he was greedy.The king and his minister met their end because of their greed. Elaborate.

(v)Give a brief character sketch of Iswaran the storyteller. Do you think he is superstitious?

MATHEMATICS

WORK SHEET

CLASS – IX

CLASS IX : CHAPTER - 1
NUMBER SYSTEM

1. Rational number $\frac{3}{40}$ is equal to:

(a) 0.75 (b) 0.12 (c) 0.012 (d) 0.075

2. A rational number between 3 and 4 is:

(a) $\frac{3}{2}$ (b) $\frac{4}{3}$ (c) $\frac{7}{2}$ (d) $\frac{7}{4}$

3. A rational number between $\frac{3}{5}$ and $\frac{4}{5}$ is:

(a) $\frac{7}{10}$ (b) $\frac{7}{5}$ (c) $\frac{3}{10}$ (d) $\frac{4}{10}$

4. A rational number between $\frac{1}{4}$ and $\frac{3}{2}$ is:

(a) $\frac{2}{5}$ (b) $\frac{5}{8}$ (c) $\frac{4}{3}$ (d) $\frac{1}{4}$

5. Which one of the following is not a rational number:

(a) $\sqrt{2}$ (b) 0 (c) $\sqrt{4}$ (d) $\sqrt{-16}$

6. Which one of the following is an irrational number:

(a) $\sqrt{4}$ (b) $3\sqrt{8}$ (c) $\sqrt{100}$ (d) $-\sqrt{0.64}$

7. Decimal representation of $\frac{1}{5}$ is :

(a) 0.2 (b) 0.5 (c) 0.02 (d) 0.002

8. $3\frac{3}{8}$ in decimal form is:

(a) 3.35 (b) 3.375 (c) 33.75 (d) 337.5

9. $\frac{5}{6}$ in the decimal form is:

(a) 0.83 (b) 0.833 (c) 0.63 (d) 0.633

10. Decimal representation of rational number $\frac{8}{27}$ is:

(a) $\overline{0.296}$ (b) 0.296 (c) $\overline{0.296}$ (d) 0.296

MCQ WORKSHEET-II

CLASS IX : CHAPTER - 1

NUMBER SYSTEM

1. Which one of the following is a rational number:

(a) $\sqrt{3}$ (b) $\sqrt{2}$ (c) 0 (d) $\sqrt{5}$

2. 0.6666 in $\frac{p}{q}$ — form is:

(a) $\frac{6}{99}$ (b) $\frac{2}{3}$ (c) $\frac{3}{5}$ (d) $\frac{1}{66}$

3. $4\frac{1}{8}$ – in decimal form is:

(a) 4.125 (b) $4.\overline{15}$ (c) $4.1\overline{5}$ (d) $0.\overline{415}$

4. The value of $\left(3+\sqrt{3}\right)\left(3-\sqrt{3}\right)$ is:

(a) 0 (b) 6 (c) 9 (d) 3

5. The value of $\left(\sqrt{5}+\sqrt{2}\right)^2$ is:

(a) $7+2\sqrt{5}$ (b) $1+5\sqrt{2}$ (c) $7+2\sqrt{10}$ (d) $7-2\sqrt{10}$

6. The value of $\left(\sqrt{5}+\sqrt{2}\right)\left(\sqrt{5}-\sqrt{2}\right)$ is:

(a) 10 (b) 7 (c) 3 (d) $\sqrt{3}$

7. The value of $\left(3+\sqrt{3}\right)\left(2+\sqrt{2}\right)$ is:

(a) $6+3\sqrt{2}+2\sqrt{3}+\sqrt{6}$

(b) $3+3\sqrt{2}+3\sqrt{3}+6$

(c) $6-3\sqrt{2}-2\sqrt{3}-\sqrt{6}$

(d) $6-3\sqrt{2}+2\sqrt{3}-\sqrt{6}$

8. The value of $\left(\sqrt{11}+\sqrt{7}\right)\left(\sqrt{11}-\sqrt{7}\right)$ is:

(a) 4 (b) – 4 (c) 18 (d) – 18

9. The value of $\left(5+\sqrt{5}\right)\left(5-\sqrt{5}\right)$ is :

(a) 0 (b) 25 (c) 20 (d) – 20

10. On rationalizing the denominator of $\frac{1}{\sqrt{7}}$, we get

(a) 7 (b) $\frac{\sqrt{7}}{7}$ (c) $\frac{-\sqrt{7}}{7}$ (d) $\sqrt{7}$

MCQ WORKSHEET-III

CLASS IX : CHAPTER - 1

NUMBER SYSTEM

1. On rationalizing the denominator of $\frac{1}{\sqrt{7}-\sqrt{6}}$, we get

(a) $\frac{\sqrt{7}+\sqrt{6}}{\sqrt{7}-\sqrt{6}}$ (b) $\frac{\sqrt{7}-\sqrt{6}}{\sqrt{7}+\sqrt{6}}$ (c) $\sqrt{7}+\sqrt{6}$ (d) $\sqrt{7}-\sqrt{6}$

2. On rationalizing the denominator of $\frac{1}{\sqrt{5}+\sqrt{2}}$, we get

(a) $\sqrt{5}-\sqrt{2}$ (b) $\frac{\sqrt{2}-\sqrt{5}}{3}$ (c) $\frac{\sqrt{5}-\sqrt{2}}{3}$ (d) $\frac{\sqrt{2}-\sqrt{5}}{3}$

3. On rationalizing the denominator of $\frac{1}{\sqrt{7}-2}$, we get

(a) $\sqrt{7}-2$ (b) $\sqrt{7}+2$ (c) $\frac{\sqrt{7}+2}{3}$ (d) $\frac{\sqrt{7}-2}{3}$

4. On rationalizing the denominator of $\frac{1}{\sqrt{2}}$, we get

(a) 2 (b) $\sqrt{2}$ (c) $\frac{2}{\sqrt{2}}$ (d) $\frac{\sqrt{2}}{2}$

5. On rationalizing the denominator of $\frac{1}{2+\sqrt{3}}$, we get

(a) $2-\sqrt{3}$ (b) $\sqrt{3}-2$ (c) $2+\sqrt{3}$ (d) $-\sqrt{3}-2$

6. On rationalizing the denominator of $\frac{1}{\sqrt{3}-\sqrt{2}}$, we get

(a) $\frac{1}{\sqrt{3}+\sqrt{2}}$ (b) $\sqrt{3}+\sqrt{2}$ (c) $\sqrt{2}-\sqrt{3}$ (d) $-\sqrt{3}-\sqrt{2}$

7. The value of $64^{\frac{1}{2}}$ is :

(a) 8 (b) 4 (c) 16 (d) 32

8. The value of $32^{\frac{1}{5}}$ is :

(a) 16 (b) 160 (c) 2 (d) 18

9. The value of $(125)^{\frac{1}{3}}$ is :

(a) 5 (b) 25 (c) 45 (d) 35

10. The value of $9^{\frac{3}{2}}$ is :

(a) 18 (b) 27 (c) – 18 (d) $\frac{1}{2}$

MCQ WORKSHEET-IV

CLASS IX : CHAPTER - 1

NUMBER SYSTEM

1. The value of $32^{2/5}$ is :

(a) 2 (b) 4 (c) 16 (d) 14

2. The value of $16^{3/4}$ is :

(a) 4 (b) 12 (c) 8 (d) 48

3. The value of $125^{-\frac{1}{3}}$ is :

(a) $\frac{1}{5}$ (b) $\frac{1}{25}$ (c) $\frac{1}{15}$ (d) $\frac{1}{125}$

4. The value of $11^{1/2} \div 11^{1/4}$ is :

(a) $11^{1/4}$ (b) $11^{3/4}$ (c) $11^{1/8}$ (d) $11^{1/2}$

5. The value of $64^{-3/2}$ is :

(a) $\frac{1}{96}$ (b) $\frac{1}{64}$ (c) 512 (d) $\frac{1}{512}$

6. The value of $(125)^{\frac{2}{3}}$ is :

(a) 5 (b) 25 (c) 45 (d) 35

7. The value of $25^{3/2}$ is :

(a) 5 (b) 25 (c) 125 (d) 625

8. The value of $\frac{1}{11}$ in decimal form is:

(a) $0.0\overline{99}$ (b) $0.\overline{909}$ (c) $0.\overline{09}$ (d) $0.00\overline{9}$

9. Decimal expansion of a rational number is terminating if in its denominator there is:

(a) 2 or 5 (b) 3 or 5 (c) 9 or 11 (d) 3 or 7

10. The exponent form of $\sqrt[3]{7}$ is:

(a) 7^3 (b) 3^7 (c) $7^{1/3}$ (d) $3^{1/7}$

MCQ WORKSHEET-V

CLASS IX : CHAPTER - 1

NUMBER SYSTEM

1. Which of the following is true?
(a) Every whole number is a natural number (b) Every integer is a rational number
(c) Every rational number is an integer (d) Every integer is a whole number

2. For Positive real numbers a and b, which is not true?
(a) $\sqrt{ab} = \sqrt{a}\sqrt{b}$ (b) $\left(a+\sqrt{b}\right)\left(a-\sqrt{b}\right) = a^2 - b$
(c) $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$ (d) $\left(\sqrt{a}+\sqrt{b}\right)\left(\sqrt{a}-\sqrt{b}\right) = a+b$

3. Out of the following, the irrational number is
(a) $1.\bar{5}$ (b) $2.4\overline{77}$ (c) $1.2\overline{77}$ (d) π

4. To rationalize the denominator of $\frac{1}{\sqrt{a+b}}$, we multiply this by
(a) $\frac{1}{\sqrt{a}+b}$ (b) $\frac{1}{\sqrt{a}-b}$ *(c)* $\frac{\sqrt{a}+b}{\sqrt{a}+b}$ (d) $\frac{\sqrt{a}-b}{\sqrt{a}-b}$

5. The number of rational numbers between $\sqrt{3}$ and $\sqrt{5}$ is
(a) One (b) 3 (c) none (d) infinitely many

6. If we add two irrational numbers, the resulting number
(a) is always an irrational number (b) is always a rational number
(c) may be a rational or an irrational number (d) always an integer

7. The rationalizing factor of $7 - 2\sqrt{3}$ is
(a) $7 - 2\sqrt{3}$ (b) $7 + 2\sqrt{3}$ (c) $5 + 2\sqrt{3}$ (d) $4 + 2\sqrt{3}$

8. If $\frac{1}{7} = 0.\overline{142857}$, then $\frac{4}{7}$ equals
(a) $0.\overline{428571}$ (b) $0.\overline{571428}$ (c) $0.\overline{857142}$ (d) $0.\overline{285718}$

9. The value of n for which $\sqrt{n}$ be a rational number is
(a) 2 (b) 4 (c) 3 (d) 5

10. $\frac{3\sqrt{12}}{6\sqrt{27}}$ equals
(a) $\frac{1}{2}$ (b) $\sqrt{2}$ (c) $\sqrt{3}$ (d) $\frac{1}{3}$

11. $\left(3+\sqrt{3}\right)\left(3-\sqrt{2}\right)$ equals
(a) $9 - 5\sqrt{2} - 6\sqrt{}$ (b) $9-\sqrt{6}$ (c) $3+\sqrt{2}$ (d) $9 - 3\sqrt{2} + 3\sqrt{3} - \sqrt{6}$

12. The arrangement of $\sqrt{2}, \sqrt[3]{5}, 3\sqrt{3}$ in ascending order is

(a) $\sqrt{2}, \sqrt{3}, \sqrt{5}$ (b) $\sqrt{2}, \sqrt{5}, \sqrt{3}$ (c) $\sqrt{5}, \sqrt{3}, \sqrt{2}$ (d) $\sqrt{3}, \sqrt{2}, \sqrt{5}$

13. If m and n are two natural numbers and $m^n = 32$, then n^{mn} is

(a) 5^2 (b) 5^3 (c) 5^{10} (d) 5^{12}

14. If $\sqrt{10} = 3.162$, then the value of $\frac{1}{\sqrt{10}}$ is

(a) 0.3162 (b) 3.162 (c) 31.62 (d) 316.2

15. If $\left(\frac{3}{4}\right)^6 \times \left(\frac{16}{9}\right)^5 = \left(\frac{4}{3}\right)^{x+2}$, then the value of x is

(a) 2 (b) 4 (c) -2 (d) 6

PRACTICE QUESTIONS
CLASS IX : CHAPTER - 1
NUMBER SYSTEM

1. Prove that $\sqrt{5}-\sqrt{3}$ is not a rational number.

2. Arrange the following in descending order of magnitude: $\sqrt[8]{90},\ \sqrt[4]{10},\ \sqrt{6}$

3. Simplify the following:

(*i*) $\left(4\sqrt{3}-2\sqrt{2}\right)\left(3\sqrt{2}+4\sqrt{3}\right)$

(*ii*) $\left(2+\sqrt{3}\right)\left(3+\sqrt{5}\right)$

(iii) $\left(\sqrt{3}+\sqrt{2}\right)^2$

(iv) $\left(\frac{2}{3}\sqrt{7}-\frac{1}{2}\sqrt{2}+6\sqrt{11}\right)+\left(\sqrt{7}+\frac{3}{2}\sqrt{2}-\sqrt{11}\right)$

3

4. Rationalize the denominator of the following:

(*i*) $\frac{2}{\sqrt{3}-\sqrt{5}}$ (*ii*) $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ (iii) $\frac{6}{\sqrt{5}+\sqrt{2}}$ (iv) $\frac{1}{8+5\sqrt{2}}$

(*v*) $\frac{3-2\sqrt{2}}{3+2\sqrt{2}}$ (*vi*) $\frac{\sqrt{3}-1}{\sqrt{3}+1}$ (vii) $\frac{4}{\sqrt{7}+\sqrt{3}}$ (viii) $\frac{1}{5+3\sqrt{2}}$

5. Rationalise the denominator of the following:

(i) $\frac{2}{3\sqrt{3}}$ (ii) $\frac{16}{\sqrt{41}-5}$ (iii) $\frac{\sqrt{5}+\sqrt{2}}{\sqrt{5}-\sqrt{2}}$

(iv) $\frac{\sqrt{40}}{\sqrt{3}}$ (*v*) $\frac{3+\sqrt{2}}{4\sqrt{2}}$ (vi) $\frac{2+\sqrt{3}}{2-\sqrt{3}}$

(vii) $\frac{\sqrt{6}}{\sqrt{2}+\sqrt{3}}$ (viii) $\frac{3\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ (*ix*) $\frac{4\sqrt{3}+5\sqrt{2}}{\sqrt{48}+\sqrt{18}}$

6. If $a=6-\sqrt{35}$, find the value of $a^2+\frac{1}{a^2}$

7. If $x=3+\sqrt{8}$, find the value of (i) $x^2+\frac{1}{x^2}$ and (ii) $x^4+\frac{1}{x^4}$

8. Simplify, by rationalizing the denominator $\frac{2\sqrt{6}}{\sqrt{2}+\sqrt{3}}+\frac{6\sqrt{2}}{\sqrt{6}+\sqrt{3}}-\frac{8\sqrt{3}}{\sqrt{6}+\sqrt{2}}$

9. Simplify, by rationalizing the denominator

$$\frac{1}{3-\sqrt{8}}-\frac{1}{\sqrt{8}-\sqrt{7}}+\frac{1}{\sqrt{7}-\sqrt{6}}-\frac{1}{\sqrt{6}-\sqrt{5}}+\frac{1}{\sqrt{5}-2}$$

10. If $x=\frac{\sqrt{2}+1}{\sqrt{2}-1}$ and $y=\frac{\sqrt{2}-1}{\sqrt{2}+1}$, find the value of x^2+y^2+xy.

11. If $x=\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ and $y=\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$, find the value of x^2+y^2.

12. If $x=\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ and $y=\frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$, find the value of $x+y+xy$.

13. If $x = \frac{2-\sqrt{5}}{2+\sqrt{5}}$ and $y = \frac{2+\sqrt{5}}{2-\sqrt{5}}$, find the value of $x^2 - y^2$.

14. If $\frac{5+2\sqrt{3}}{7+\sqrt{3}} = a - \sqrt{3}b$, find a and b where a and b are rational numbers.

15. If a and b are rational numbers and $\frac{4+3\sqrt{5}}{4-3\sqrt{5}} = a + b\sqrt{5}$, find the values of a and b.

16. If a and b are rational numbers and $\frac{2+\sqrt{3}}{2-\sqrt{3}} = a + b\sqrt{3}$, find the values of a and b.

17. If a and b are rational numbers and $\frac{11-\sqrt{7}}{11+\sqrt{7}} = a - b\sqrt{77}$, find the values of a and b.

18. Evaluate: $\frac{1}{\sqrt{2}+1} + \frac{1}{\sqrt{3}+\sqrt{2}} + \frac{1}{\sqrt{4}+\sqrt{3}} + \ldots\ldots\ldots\ldots + \frac{1}{\sqrt{9}+\sqrt{8}}$

19. If $x = \frac{1}{2+\sqrt{3}}$, find the value of $2x^3 - 7x^2 - 2x + 1$.

20. If $x = \frac{1}{2-\sqrt{3}}$, find the value of $x^3 - 2x^2 - 7x + 5$.

21. If $\sqrt{2} = 1.414$ and $\sqrt{5} = 2.236$, find the value of $\frac{\sqrt{10}-\sqrt{5}}{2\sqrt{2}}$ upto three places of decimals.

22. Find six rational numbers between 3 and 4.

23. Find five rational numbers between $\frac{3}{5}$ and $\frac{4}{5}$

24. Find the value of a and b in $\frac{\sqrt{3}-1}{\sqrt{3}+1} = a + b\sqrt{3}$.

25. Find the value of a and b in $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a + b\sqrt{3}$

26. Find the value of a and b in $\frac{5-\sqrt{6}}{5+\sqrt{6}} = a - b\sqrt{6}$

27. Simplify $\frac{4+\sqrt{5}}{\sqrt{5}} + \frac{4-\sqrt{5}}{4+\sqrt{5}}$ by rationalizing the denominator.

28. Simplify $\frac{\sqrt{5}-1}{\sqrt{5}+1} + \frac{\sqrt{5}+1}{\sqrt{5}-1}$ by rationalizing the denominator.

29. Simplify $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}} + \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ by rationalizing the denominator.

30. If $x = \frac{3+\sqrt{2}}{3-\sqrt{2}}$, find (i) $x^2 + \frac{1}{x^2}$ (ii) $x^4 + \frac{1}{x^4}$.

31. If $x = 4 - \sqrt{15}$, find (i) $x^2 + \frac{1}{x^2}$ (ii) $x^4 + \frac{1}{x^4}$.

32. If $x = 2 + \sqrt{3}$, find (i) $x^2 + \frac{1}{x^2}$ (ii) $x^4 + \frac{1}{x^4}$.

33. Represent the real number $\sqrt{10}$ on the number line.

34. Represent the real number $\sqrt{13}$ on the number line.

35. Represent the real number $\sqrt{7}$ on the number line.

36. Represent the real number $\sqrt{2}, \sqrt{3}, \sqrt{5}$ on a single number line.

37. Find two rational number and two irrational number between $\sqrt{2}$ and $\sqrt{3}$.

38. Find the decimal expansions of $\frac{10}{3}, \frac{7}{8}$ and $\frac{1}{7}$.

39. Show that 3.142678 is a rational number. In other words, express 3.142678 in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

40. Show that 0.3333……. can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

41. Show that 1.27272727……. can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

42. Show that 0.23535353……. can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

43. Express the following in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

(*i*) $0.\overline{6}$ (ii) $0.4\overline{7}$ (iii) $0.\overline{001}$ (iv) $0.2\overline{6}$

44. Find three different irrational numbers between the rational numbers $\frac{5}{7}$ and $\frac{9}{11}$.

45. Visualize the representation of $5.3\overline{7}$ using successive magnification

46. Visualize $4.\overline{26}$ on the number line, using successive magnification upto 4 decimal places.

47. Visualize 3.765 on the number line, using successive magnification.

48. Find the value of a and b in each of the following:

(*i*) $\frac{3+\sqrt{2}}{3-\sqrt{2}} = a + b\sqrt{2}$ (*ii*) $\frac{3+\sqrt{7}}{3-\sqrt{7}} = a + b\sqrt{7}$ (*iii*) $\frac{7+\sqrt{5}}{7-\sqrt{5}} = a + b\sqrt{5}$

49. Simplify each of the following by rationalizing the denominator.

(*i*) $\frac{6-4\sqrt{2}}{6+4\sqrt{2}}$ (ii) $\frac{\sqrt{5}-2}{\sqrt{5}+2} - \frac{\sqrt{5}+2}{\sqrt{5}-2}$

50. Evaluate the following expressions:

(*i*) $\left(\frac{256}{6561}\right)^{\frac{3}{8}}$ (*ii*) $(15625)^{\frac{1}{6}}$ (iii) $\left(\frac{343}{1331}\right)^{\frac{1}{3}}$

(iv) $\sqrt[8]{\frac{6561}{65536}}$ (*v*) $343^{-\frac{1}{3}}$

51. Simplify: $\frac{3\sqrt{2}+\sqrt{48}}{\sqrt{8}+\sqrt{12}}$

52. Simplify: $\frac{7}{3\sqrt{3}-2\sqrt{2}}$

53. Simplify: $(i)\ \sqrt[4]{\sqrt[3]{2^2}}$ $(ii)\ \sqrt[3]{2}.\sqrt[4]{2}.\sqrt[12]{32}$

54. If $\sqrt{2} = 1.4142$, then find the value of $\sqrt{\frac{\sqrt{2}+1}{\sqrt{2}-1}}$.

55. If $\sqrt{3} = 1.732$, then find the value of $\sqrt{\frac{\sqrt{3}+1}{\sqrt{3}-1}}$.

56. Find the value of a if $\frac{6}{\sqrt{3}-\sqrt{2}} = 3\sqrt{2} - a\sqrt{3}$

57. Evaluate the following expressions:

$(i)\left(\frac{625}{81}\right)^{-\frac{1}{4}}$ $(ii)27^{\frac{2}{3}} \times 27^{\frac{1}{3}} \times 27^{-\frac{4}{3}}$ $(iii)(6.25)^{\frac{3}{2}}$

$(iv)(0.000064)^{-\frac{5}{6}}$ $(v)\left(17^2 - 8^2\right)^{-\frac{1}{2}}$

58. Express $0.6 + 0.\overline{7} + 0.4\overline{7}$ in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

59. Simplify: $\frac{7\sqrt{3}}{\sqrt{10}+\sqrt{3}} - \frac{2\sqrt{5}}{\sqrt{6}+\sqrt{5}} - \frac{3\sqrt{2}}{\sqrt{15}+3\sqrt{2}}$

60. If $\sqrt{2} = 1.414, \sqrt{3} = 1.732$, then find the value of $\frac{4}{3\sqrt{3}-2\sqrt{2}} + \frac{3}{3\sqrt{3}+2\sqrt{2}}$.

61. Simplify:

$(i)\ \left[5\left(8^{\frac{1}{3}} + 27^{\frac{1}{3}}\right)^3\right]^{\frac{1}{4}}$ $(ii)\ \sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$ $(iii)\ \frac{\sqrt{24}}{8} + \frac{\sqrt{54}}{9}$

$(iv)\sqrt[4]{12} \times \sqrt[6]{7}$ $(v)\sqrt[4]{28} \div \sqrt[3]{7}$ $(vi)\sqrt[3]{3} + 2\sqrt{27} + \frac{1}{\sqrt{3}}$

$(vii)\left(\sqrt{3} - \sqrt{5}\right)^2$ $(viii)\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32} + \sqrt{225}$

$(ix)\ \frac{3}{\sqrt{8}} + \frac{1}{\sqrt{2}}$ $(x)\ \frac{\sqrt[2]{3}}{3} - \frac{\sqrt{3}}{6}$

62. If $a = \frac{3+\sqrt{5}}{2}$ then find the value of $a^2 + \frac{1}{a^2}$.

63. Simplify: $\left(256\right)^{\left(-4^{-\frac{3}{2}}\right)}$

64. Find the value of $\frac{4}{(216)^{-\frac{2}{3}}} + \frac{1}{(256)^{-\frac{3}{4}}} + \frac{2}{(243)^{-\frac{1}{5}}}$

65. If $a = 5 + 2\sqrt{6}$ and $b = \frac{1}{a}$ then what will be the value of $a^2 + b^2$?

66. Find the value of a and b in each of the following:

(*i*) $\frac{3-\sqrt{5}}{3+2\sqrt{5}} = a\sqrt{5} - \frac{19}{11}$

(*ii*) $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = 2 - b\sqrt{6}$

(*iii*) $\frac{7+\sqrt{5}}{7-\sqrt{5}} - \frac{7-\sqrt{5}}{7+\sqrt{5}} = a + \frac{7}{11}b\sqrt{5}$

67. If $a = 2+\sqrt{3}$, then find the value of $a - \frac{1}{a}$.

68. Rationalise the denominator in each of the following and hence evaluate by taking $\sqrt{2} = 1.414, \sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$, upto three places of decimal.

(i) $\frac{4}{\sqrt{3}}$ (ii) $\frac{6}{\sqrt{6}-\sqrt{2}}$ (iii) $\frac{\sqrt{10}-\sqrt{5}}{\sqrt{10}+\sqrt{5}}$ (iv) $\frac{\sqrt{2}}{2+\sqrt{2}}$ (*v*) $\frac{1}{\sqrt{3}+\sqrt{2}}$

69. Simplify:

(*i*) $\left(1^3 + 2^3 + 3^3\right)^{\frac{1}{2}} \times 5^{-1}$ (*ii*) $\left(\frac{3}{5}\right)^4 \left(\frac{8}{5}\right)^{-12} \left(\frac{32}{5}\right)^6$ (iii) $\left(-\frac{1}{27}\right)^{\frac{-2}{3}}$

(*iv*) $\left[\left\{\left(625\right)^{\frac{-1}{2}}\right\}^{\frac{-1}{4}}\right]^2$ (*v*) $\frac{8^{\frac{1}{3}} \times 16^{\frac{1}{3}}}{32^{\frac{-1}{3}}}$ (*vi*) $64^{\frac{-1}{3}}\left[64^{\frac{1}{3}} - 64^{\frac{2}{3}}\right]$

70. Simplify: $\frac{9^{\frac{1}{3}} \times 27^{\frac{-1}{2}}}{3^{\frac{1}{6}} \times 3^{\frac{-2}{3}}}$

MCQ WORKSHEET-I
CLASS IX : CHAPTER - 2
POLYNOMIALS

1. In $2 + x + x^2$ the coefficient of x^2 is:
(a) 2 (b) 1 (c) – 2 (d) –1

2. In $2 – x^2 + x^3$ the coefficient of x^2 is:
(a) 2 (b) 1 (c) – 2 (d) –1

3. In $\frac{\pi x^2}{2} + x + 10$, the coefficient of x^2 is:
(a) $\frac{\pi}{2}$ (b) 1 (c) $-\frac{\pi}{2}$ (d) –1

4. The degree of $5t – 7$ is:
1. 0 (b) 1 (c) 2 (d) 3

5. The degree of $4 – y^2$ is:
(a) 0 (b) 1 (c) 2 (d) 3

6. The degree of 3 is:
(a) 0 (b) 1 (c) 2 (d) 3

7. The value of $p(x) = 5x – 4x^2 + 3$ for $x = 0$ is:
(a) 3 (b) 2 (c) – 3 (d) – 2

8. The value of $p(x) = 5x – 4x^2 + 3$ for $x = – 1$ is:
(a) 6 (b) –6 (c) 3 (d) – 3

9. The value of $p(x) = (x – 1)(x + 1)$ for $p(1)$ is:
(a) 1 (b) 0 (c) 2 (d) – 2

10. The value of $p(t) = 2 + t + 2t^2 – t^3$ for $p(0)$ is:
(a) 1 (b) 2 (c) – 1 (d) 3

11. The value of $p(t) = 2 + t + 2t^2 – t^3$ for $p(2)$ is:
(a) 4 (b) –4 (c) 6 (d) 7

12. The value of $p(y) = y^2 – y + 1$ for $p(0)$ is:
(a) –1 (b) 3 (c) –2 (d) 1

MCQ WORKSHEET-II

CLASS IX : CHAPTER - 2

POLYNOMIALS

1. The zero of p(x) = 2x – 7 is:

(a) $\frac{7}{2}$ (b) $\frac{2}{7}$ (c) $\frac{-2}{7}$ (d) $\frac{-7}{2}$

2. The zero of p(x) = 9x + 4 is:

(a) $\frac{4}{9}$ (b) $\frac{9}{4}$ (c) $\frac{-4}{9}$ (d) $\frac{-9}{4}$

3. Which are the zeroes of $p(x) = x^2 - 1$:

(a) 1, –1 (b) – 1, 2 (c) –2, 2 (d) –3, 3

4. Which are the zeroes of p(x) = (x – 1)(x – 2):

(a) 1, –2 (b) – 1, 2 (c) 1, 2 (d) –1, –2

5. Which one of the following is the zero of p(x) = lx + m

(a) $\frac{m}{l}$ *(b)* $\frac{l}{m}$ *(c)* $-\frac{m}{l}$ *(d)* $-\frac{l}{m}$

6. Which one of the following is the zero of p(x) = 5*x* – □ :

(a) $-\frac{4}{5}$□ (b) $\frac{1}{5}$□ (c) $\frac{4}{5}$□ (d) none of these

7. On dividing $x^3 + 3x^2 + 3x + 1$ by x we get remainder:

(a) 1 (b) 0 (c) – 1 (d) 2

8. On dividing $x^3 + 3x^2 + 3x + 1$ by *x* + □ we get remainder:

(a) $-□^3+3□^2-3□+1$

(b) $□^3-3□^2+3□+1$

(c) $-□^3-3□^2-3□-1$

(d) $-□^3+3□^2-3□-1$

9. On dividing $x^3 + 3x^2 + 3x + 1$ by 5 + 2x we get remainder:

(a) $\frac{8}{27}$ (b) $\frac{27}{8}$ (c) $-\frac{27}{8}$ (d) $-\frac{8}{27}$

10. If x – 2 is a factor of $x^3 - 3x + 5a$ then the value of a is:

(a) 1 (b) –1 (c) $\frac{2}{5}$ (d) $\frac{-2}{5}$

MCQ WORKSHEET-III
CLASS IX : CHAPTER - 2
POLYNOMIALS

1. $(x + 8)(x – 10)$ in the expanded form is:
(a) $x^2 – 8x – 80$ (b) $x^2 – 2x – 80$ (c) $x^2 + 2x + 80$ (d) $x^2 – 2x + 80$

2. The value of 95 x 96 is:
(a) 9020 (b) 9120 (c) 9320 (d) 9340

3. The value of 104 x 96 is:
(a) 9984 (b) 9624 (c) 9980 (d) 9986

4. Without actual calculating the cubes the value of $28^3 + (–15)^3 + (–13)^3$ is:
(a) 16380 (b) –16380 (c) 15380 (d) –15380

5. If $x – 2$ is a factor of $x^3 – 2ax^2 + ax – 1$ then the value of a is:
(a) $\frac{7}{6}$ 6 (b) $\frac{-7}{}$ (c) $\frac{6}{7}$ (d) $\frac{-6}{7}$

6. If $x + 2$ is a factor of $x^3 + 2ax^2 + ax – 1$ then the value of a is:
(a) $\frac{2}{3}$ (b) $\frac{3}{5}$ (c) $\frac{3}{2}$ (d) $\frac{1}{2}$

7. If $x + y + z = 0$ then $x^3 + y^3 + z^3$ is equal to
(a) 3xyz (b) – 3xyz (c) xy (d) –2xy

8. The factors of $2x^2 – 7x + 3$ are:
(a) $(x – 3)(2x – 1)$ (b) $(x + 3)(2x + 1)$
(c) $(x – 3)(2x + 1)$ (d) $(x + 3)(2x – 1)$

9. The factors of $6x^2 + 5x – 6$ are:
(a) $(2x – 3)(3x – 2)$ (b) $(2x – 3)(3x + 2)$
(c) $(2x + 3)(3x – 2)$ (d) $(2x + 3)(3x + 2)$

10. The factors of $3x^2 – x – 4$ are:
(a) $(3x – 4)(x – 1)$ (b) $(3x – 4)(x + 1)$
(c) $(3x + 4)(x – 1)$ (d) $(3x + 4)(x + 1)$

11. The factors of $12x^2 – 7x + 1$ are:
(a) $(4x – 1)(3x – 1)$ (b) $(4x – 1)(3x + 1)$
(c) $(4x + 1)(3x – 1)$ (d) $(4x + 1)(3x + 1)$

12. The factors of $x^3 – 2x^2 – x + 2$ are:
(a) $(x – 1)(x – 1)(x – 5)$ (b) $(x + 1)(x + 1)(x + 5)$
(c) $(x + 1)(x – 1)(x + 5)$ (d) $(x + 1)(x + 1)(x – 5)$

MCQ WORKSHEET-IV

CLASS IX : CHAPTER - 2

POLYNOMIALS

1. Which of the following is not a polynomial?

(a) $x^2+\sqrt{2}x+3$ (b) $x^2+\sqrt{2x}+6$ (c) x^3+3x^2-3 (d) $6x+4$

2. The degree of the polynomial $3x^3 - x^4 + 5x + 3$ is

(a) –4 (b) 4 (c) 1 (d) 3

3. Zero of the polynomial $p(x) = a^2x$, $a \neq 0$ is

(a) x = 0 (b) x = 1 (c) x = –1 (d) a = 0

4. Which of the following is a term of a polynomial?

(a) 2x (b) $\frac{3}{x}$ (c) $x^{\sqrt{}}$ (d) $\sqrt{x}$

5. If $p(x) = 5x^2 - 3x + 7$, then p(1) equals

(a) –10 (b) 9 (c) –9 (d) 10

6. Factorisation of $x^3 + 1$ is

(a) $(x + 1)(x^2 – x + 1)$ (b) $(x + 1)(x^2 + x + 1)$
(c) $(x + 1)(x^2 – x – 1)$ (d) $(x + 1)(x^2 + 1)$

7. If x + y + 2 = 0, then $x^3 + y^3 + 8$ equals

(a) $(x + y + 2)^3$ (b) 0 (c) 6xy (d) –6xy

8. If x = 2 is a zero of the polynomial $2x^2 + 3x – p$, then the value of p is

(a) –4 (b) 0 (c) 8 (d) 14

9. $x+\frac{1}{x}$ is

(a) a polynomial of degree 1 (b) a polynomial of degree 2
(c) a polynomial of degree 3 (d) not a polynomial

10. Integral zeroes of the polynomial (x + 3)(x – 7) are

(a) –3, –7 (b) 3, 7 (c) –3, 7 (d) 3, –7

11. The remainder when $p(x) = 2x^2 – x – 6$ is divided by (x – 2) is

(a) p(– 2) (b) p(2) (c) p(3) (d) p(–3)

12. If $2\left(a^2+b^2\right)=(a+b)^2$, then

(a) a + b = 0 (b) a = b (c) 2a = b (d) ab = 0

13. If $x^3 + 3x^2 + 3x + 1$ is divided by (x + 1), then the remainder is

(a) –8 (b) 0 (c) 8 (d) $\frac{1}{8}$

14. The value of $(525)^2 – (475)^2$ is

(a) 100 (b) 1000 (c) 100000 (d) –100

15. If a + b = –1, then the value of $a^3 + b^3 - 3ab$ is

(a) –1 (b) 1 (c) 26 (d) –26

16. The value of $(2-a)^3 + (2-b)^3 + (2-c)^3 - 3(2-a)(2-b)(2-c)$ when a + b + c = 6 is

(a) –3 (b) 3 (c) 0 (d) –1

17. If $\frac{a}{b} + \frac{b}{a} = 1$, $(a \neq 0, b \neq 0)$, then the value of $a^3 - b^3$ is

(a) –1 (b) 0 (c) 1 (d) $\frac{1}{2}$

18. If $x = \frac{1}{2-\sqrt{3}}$, then the value of $(x^2 - 4x + 1)$ is

(a) –1 (b) 0 (c) 1 (d) 3

19. The number of zeroes of the polynomial $x^3 + x - 3 - 3x^2$ is

(a) 1 (b) 2 (c) 0 (d) 3

20. If (x + 2) and (x – 2) are factors of $ax^4 + 2x - 3x^2 + bx - 4$, then the value of a + b is

(a) –7 (b) 7 (c) 14 (d) –8

PRACTICE QUESTIONS

CLASS IX : CHAPTER - 2
POLYNOMIALS

1. Factorize the following: $9x^2 + 6x + 1 - 25y^2$.

2. Factorize the following: $a^2 + b^2 + 2ab + 2bc + 2ca$

3. Show that $p(x) = x^3 - 3x^2 + 2x - 6$ has only one real zero.

4. Find the value of a if $x + 6$ is a factor of $x^3 + 3x^2 + 4x + a$.

5. If polynomials $ax^3 + 3x^2 - 3$ and $2x^3 - 5x + a$ leaves the same remainder when each is divided by $x - 4$, find the value of a..

6. The polynomial $f(x)= x^4 - 2x^3 + 3x^2 - ax + b$ when divided by $(x - 1)$ and $(x + 1)$ leaves the remainders 5 and 19 respectively. Find the values of a and b. Hence, find the remainder when f(x) is divided by $(x - 2)$.

7. If the polynomials $2x^3 + ax^2 + 3x - 5$ and $x^3 + x^2 - 2x + a$ leave the same remainder when divided by $(x - 2)$, find the value of a. Also, find the remainder in each case.

8. If the polynomials $az^3 + 4z^2 + 3z - 4$ and $z^3 - 4z + a$ leave the same remainder when divided by $z - 3$, find the value of a.

9. The polynomial $p(x) = x^4 - 2x^3 + 3x^2 - ax + 3a - 7$ when divided by $x + 1$ leaves the remainder 19. Find the values of a. Also find the remainder when $p(x)$ is divided by $x + 2$.

10. If both $x - 2$ and $x - \frac{1}{2}$ are factors of $px^2 + 5x + r$, show that $p = r$.

11. Without actual division, prove that $2x^4 - 5x^3 + 2x^2 - x + 2$ is divisible by $x^2 - 3x + 2$.

12. Simplify $(2x - 5y)^3 - (2x + 5y)^3$.

13. Multiply $x^2 + 4y^2 + z^2 + 2xy + xz - 2yz$ by $(-z + x - 2y)$.

14. If a, b, c are all non-zero and $a + b + c = 0$, prove that $\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} = 3$

15. If $a + b + c = 5$ and $ab + bc + ca = 10$, then prove that $a^3 + b^3 + c^3 - 3abc = -25$.

16. Without actual division, prove that $2x^4 - 6x^3 + 3x^2 + 3x - 2$ is exactly divisible by $x^2 - 3x + 2$.

17. Without actual division, prove that $x^3 - 3x^2 - 13x + 15$ is exactly divisible by $x^2 + 2x - 3$.

18. Find the values of a and b so that the polynomial $x^3 - 10x^2 + ax + b$ is exactly divisible by $(x - 1)$ as well as $(x - 2)$.

19. Find the integral zeroes of the polynomial $2x^3 + 5x^2 - 5x - 2$.

20. If $(x - 3)$ and $\left(x - \frac{1}{3}\right)$ are both factors of $ax^2 + 5x + b$, then show that $a = b$.

21. Find the values of a and b so that the polynomial $x^4 + ax^3 - 7x^2 + 8x + b$ is exactly divisible by $(x + 2)$ as well as $(x + 3)$.

22. If $x^3 + ax^2 + bx + 6$ has $(x - 2)$ as a factor and leaves a remainder 3 when divided by $(x - 3)$, find the values of a and b.

23. Find the value of $x^3 + y^3 + 15xy - 125$ if $x + y = 5$.

24. Without actually calculating, find the value of $(25)^3 - (75)^3 + (50)^3$.

25. Factorise each of the following cubic expressions:

(i) $8x^3 - y^3 - 12x^2y + 6xy^2$

(ii) $27q^3 - 125p^3 - 135q^2p + 225qp^2$

(iii) $8x^3 + 729 + 108x^2 + 486x$

(iv) $27x^3 - \frac{1}{216} - \frac{9}{2}x^2 + \frac{1}{4}x$

26. Factorise:

(i) $x^3 + 216y^3 + 8z^3 - 36xyz$

(ii) $a^3 - 64b^3 - 27c^3 - 36abc$

27. Factorise: $\left(\frac{1}{2}x - 3y\right)^3 + \left(3y - \sqrt{3}z\right)^3 + \left(\sqrt{3}z - \frac{1}{2}x\right)^3$

28. Give one example each of a binomial of degree 35, and of a monomial of degree 100.

29. Find a zero of the polynomial $p(x) = 2x + 1$.

30. Verify whether 2 and 0 are zeroes of the polynomial $x^2 - 2x$.

31. Find the zero of the polynomial in each of the following cases:

(i) $p(x) = x + 5$ (ii) $p(x) = x - 5$ (iii) $p(x) = 2x + 5$

(iv) $p(x) = 3x - 2$ (v) $p(x) = 3x$ (vi) $p(x) = ax$, $a \neq 0$

32. Find the value of each of the following polynomials at the indicated value of variables:

(i) $p(x) = 5x^2 - 3x + 7$ at $x = 1$.

(ii) $q(y) = 3y^3 - 4y + \sqrt{11}$ at $y = 2$.

(iii) $p(t) = 4t^4 + 5t^3 - t^2 + 6$ at $t = a$.

33. Divide $p(x)$ by $g(x)$, where $p(x) = x + 3x^2 - 1$ and $g(x) = 1 + x$.

34. Divide the polynomial $3x^4 - 4x^3 - 3x - 1$ by $x - 1$.

35. Find the remainder obtained on dividing $p(x) = x^3 + 1$ by $x + 1$.

36. Find the remainder when $x^4 + x^3 - 2x^2 + x + 1$ is divided by $x - 1$.

37. Check whether the polynomial $q(t) = 4t^3 + 4t^2 - t - 1$ is a multiple of $2t + 1$.

38. Check whether p(x) is a multiple of g(x) or not, where $p(x) = x^3 - x + 1$, $g(x) = 2 - 3x$.

39. Check whether g(x) is a factor of p(x) or not, where $p(x) = 8x^3 - 6x^2 - 4x + 3$, $g(x) = \frac{x}{3} - \frac{1}{4}$.

40. Find the remainder when $x^3 - ax^2 + 6x - a$ is divided by $x - a$.

41. Examine whether $x + 2$ is a factor of $x^3 + 3x^2 + 5x + 6$ and of $2x + 4$.

42. Find the value of k, if $x - 1$ is a factor of $4x^3 + 3x^2 - 4x + k$.

43. Find the value of a, if $x - a$ is a factor of $x^3 - ax^2 + 2x + a - 1$.

44. Factorise $6x^2 + 17x + 5$

45. Factorise $y^2 - 5y + 6$

46. Factorise $x^3 - 23x^2 + 142x - 120$.

47. Factorise :
(i) $x^3 - 2x^2 - x + 2$ (ii) $x^3 - 3x^2 - 9x - 5$
(iii) $x^3 + 13x^2 + 32x + 20$ (iv) $2y^3 + y^2 - 2y - 1$

48. Factorise : $4x^2 + 9y^2 + 16z^2 + 12xy - 24yz - 16xz$

49. Expand $(4a - 2b - 3c)^2$.

50. Factorise $4x^2 + y^2 + z^2 - 4xy - 2yz + 4xz$.

51. If $x + 1$ is a factor of $ax3 + x2 - 2x + 4a - 9$, find the value of a.

52. By actual division, find the quotient and the remainder when the first polynomial is divided by the second polynomial : $x^4 + 1$; $x - 1$

53. Find the zeroes of the polynomial : $p(x) = (x - 2)^2 - (x + 2)^2$

54. Factorise :
(i) $x^2 + 9x + 18$ (ii) $6x^2 + 7x - 3$
(iii) $2x^2 - 7x - 15$ (iv) $84 - 2r - 2r^2$

55. Factorise :
(i) $2x^3 - 3x^2 - 17x + 30$ (ii) $x^3 - 6x^2 + 11x - 6$
(iii) $x^3 + x^2 - 4x - 4$ (iv) $3x^3 - x^2 - 3x + 1$

56. Using suitable identity, evaluate the following:
(i) 103^3 (ii) 101×102 (iii) 999^2

57. Factorise the following:
(i) $4x^2 + 20x + 25$
(ii) $9y^2 - 66yz + 121z^2$
(iii) $\left(2x + \frac{1}{3}\right)^2 - \left(x - \frac{1}{2}\right)^2$

58. Factorise the following :
(i) $9x^2 - 12x + 3$ (ii) $9x^2 - 12x + 4$

59. If $a + b + c = 9$ and $ab + bc + ca = 26$, find $a^2 + b^2 + c^2$.

60. Expand the following :
(i) $(4a - b + 2c)^2$
(ii) $(3a - 5b - c)^2$

(iii) $(-x + 2y - 3z)^2$

61. Find the value of
(i) $x^3 + y^3 - 12xy + 64$, when $x + y = -4$
(ii) $x^3 - 8y^3 - 36xy - 216$, when $x = 2y + 6$

62. Factorise the following :
(i) $9x^2 + 4y^2 + 16z^2 + 12xy - 16yz - 24xz$
(ii) $25x^2 + 16y^2 + 4z^2 - 40xy + 16yz - 20xz$
(iii) $16x^2 + 4y^2 + 9z^2 - 16xy - 12yz + 24\ xz$

63. Expand the following :
(i) $(3a - 2b)^3$ (ii) $\left(\frac{1}{x} - \frac{y}{3}\right)^3$ (iii) $\left(4 - \frac{1}{3x}\right)^3$

64. Find the following products:
(i) $\left(\frac{x}{2} + 2y\right)\left(\frac{x^2}{4} - xy + 4y^2\right)$ (ii) $(x^2 - 1)(x^4 + x^2 + 1)$

65. Factorise the following :
(i) $8p^3 + \frac{12}{5}p^2 + \frac{6}{25}p + \frac{1}{125}$
(ii) $1 - 64a^3 - 12a + 48a^2$

66. Without finding the cubes, factorise $(x - 2y)^3 + (2y - 3z)^3 + (3z - x)^3$

67. Give possible expressions for the length and breadth of the rectangle whose area is given by $4a^2 + 4a - 3$.

68. Factorise: (i) $1 + 64x^3$ (ii) $a^3 - 2\sqrt{2}b^3$

69. Evaluate each of the following using suitable identities:
(i) $(104)^3$ (ii) $(999)^3$

70. Factorise : $8x^3 + 27y^3 + 36x^2y + 54xy^2$

71. Factorise : $8x^3 + y^3 + 27z^3 - 18xyz$

72. Verify : (i) $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$ (ii) $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$

73. Factorise each of the following:
(i) $27y^3 + 125z^3$ (ii) $64m^3 - 343n^3$

74. Factorise : $27x^3 + y^3 + z^3 - 9xyz$

75. Without actually calculating the cubes, find the value of each of the following:
(i) $(-12)^3 + (7)^3 + (5)^3$
(ii) $(28)^3 + (-15)^3 + (-13)^3$

76. Find the following product :$(2x - y + 3z)(4x^2 + y^2 + 9z^2 + 2xy + 3yz - 6xz)$

77. Factorise :
(i) $a^3 - 8b^3 - 64c^3 - 24abc$ (ii) $2\sqrt{2}\,a^3 + 8b^3 - 27c^3 + 18\ \sqrt{2}\,abc$.

78. Give possible expressions for the length and breadth of rectangles, in which its areas is given by $35y^2 + 13y - 12$

79. Without actually calculating the cubes, find the value of :

(*i*) $\left(\frac{1}{2}\right)^3 + \left(\frac{1}{3}\right)^3 - \left(\frac{5}{6}\right)^3$ (*ii*) $(0.2)^3 - (0.3)^3 + (0.1)^3$

80. By Remainder Theorem find the remainder, when $p(x)$ is divided by $g(x)$, where

(i) $p(x) = x^3 - 2x^2 - 4x - 1$, $g(x) = x + 1$

(ii) $p(x) = x^3 - 3x^2 + 4x + 50$, $g(x) = x - 3$

(iii) $p(x) = 4x^3 - 12x^2 + 14x - 3$, $g(x) = 2x - 1$

(iv) $p(x) = x^3 - 6x^2 + 2x - 4$, $g(x) = 1 - \frac{3}{2}x$

81. Check whether $p(x)$ is a multiple of $g(x)$ or not :

(i) $p(x) = x^3 - 5x^2 + 4x - 3$, $g(x) = x - 2$

(ii) $p(x) = 2x^3 - 11x^2 - 4x + 5$, $g(x) = 2x + 1$

82. Show that $p - 1$ is a factor of $p^{10} - 1$ and also of $p^{11} - 1$.

83. For what value of m is $x^3 - 2mx^2 + 16$ divisible by $x + 2$?

84. If $x + 2a$ is a factor of $x^5 - 4a^2x^3 + 2x + 2a + 3$, find a.

85. Find the value of m so that $2x - 1$ be a factor of $8x^4 + 4x^3 - 16x^2 + 10x + m$.

86. Show that :

(i) $x + 3$ is a factor of $69 + 11x - x^2 + x^3$.

(ii) $2x - 3$ is a factor of $x + 2x^3 - 9x^2 + 12$.

87. If $x + y = 12$ and $xy = 27$, find the value of $x^3 + y^3$.

88. Without actually calculating the cubes, find the value of $48^3 - 30^3 - 18^3$.

89. Without finding the cubes, factorise $(2x - 5y)^3 + (5y - 3z)^3 + (3z - 2x)^3$.

90. Without finding the cubes, factorise $(x - y)^3 + (y - z)^3 + (z - x)^3$.

MCQ WORKSHEET-I
CLASS IX : CHAPTER - 3
COORDINATE GEOMETRY

1. Point (–3, –2) lies in the quadrant:
(a) I (b) II (c) III (d) IV

2. Point (5, –4) lies in the quadrant:
(a) I (b) II (c) III (d) IV

3. Point (1, 7) lies in the quadrant:
(a) I (b) II (c) III (d) IV

4. Point (–6, 4) lies in the quadrant:
(a) I (b) II (c) III (d) IV

5. The point (–4, –3) means:
(a) x = –4, y = –3 (b) x = –3, y = –4 (c) x = 4, y = 3 (d) None of these

6. Point (0, 4) lies on the:
(a) I quadrant (b) II quadrant (c) x – axis (d) y – axis

7. Point (5, 0) lies on the:
(a) I quadrant (b) II quadrant (c) x – axis (d) y – axis

8. On joining points (0, 0), (0, 2), (2,2) and (2, 0) we obtain a:
(a) Square (b) Rectangle (c) Rhombus (d) Parallelogram

9. Point (–2, 3) lies in the:
(a) I quadrant (b) II quadrant (c) III quadrant (d) IV quadrant

10. Point (0, –2) lies:
(a) on the x-axis (b) in the II quadrant (c) on the y-axis (d) in the IV quadrant

11. Signs of the abscissa and ordinate of a point in the first quadrant are respectively:
(a) +, + (b) –, + (c) +, – (d) –, –

12. Signs of the abscissa and ordinate of a point in the second quadrant are respectively:
(a) +, + (b) –, + (c) +, – (d) –, –

13. Signs of the abscissa and ordinate of a point in the third quadrant are respectively:
(a) +, + (b) –, + (c) +, – (d) –, –

14. Signs of the abscissa and ordinate of a point in the fourth quadrant are respectively:
(a) +, + (b) –, + (c) +, – (d) –, –

15. Point (–1, 0) lies in the:
(a) on the negative direction of x – axis (b) on the negative direction of y – axis
(c) in the III quadrant (d) in the IV quadrant

MCQ WORKSHEET-II

CLASS IX : CHAPTER - 3
COORDINATE GEOMETRY

1. Point (0, –2) lies in the:
(a) on the negative direction of x – axis (b) on the negative direction of y – axis
(c) in the I quadrant (d) in the II quadrant

2. Abscissa of the all the points on x – axis is:
(a) 0 (b) 1 (c) –1 (d) any number

3. Ordinate of the all the points on x – axis is:
(a) 0 (b) 1 (c) –1 (d) any number

4. Abscissa of the all the points on y – axis is:
(a) 0 (b) 1 (c) –1 (d) any number

5. Ordinate of the all the points on y – axis is:
(a) 0 (b) 1 (c) –1 (d) any number

6. A point both of whose coordinates are negative will lie in:
(a) I quadrant (b) II quadrant (c) x – axis (d) y – axis

7. A point both of whose coordinates are positive will lie in:
(a) I quadrant (b) II quadrant (c) x – axis (d) y – axis

8. If y – coordinate of a point is zero, then this point always lies:
(a) I quadrant (b) II quadrant (c) x – axis (d) y – axis

9. If x – coordinate of a point is zero, then this point always lies:
(a) I quadrant (b) II quadrant (c) x – axis (d) y – axis

10. The point (1, –1), (2, –2), (4, –5), (–3,–4) lies in:
(a) II quadrant (b) III quadrant (c) IV quadrant
(d) do not lie in the same quadrant

11. The point (1, –2), (2, –3), (4, –6), (2,–7) lies in:
(a) II quadrant (b) III quadrant (c) IV quadrant
(d) do not lie in the same quadrant

12. The point (–5, 2) and (2,–5) lies in:
(a) same quadrant (b) II and III quadrant, respectively
(c) II and IV quadrant, , respectively (d) IV and II quadrant, respectively

13. The point whose ordinate is 4 and which lies on y – axis is:
(a) (4, 0) (b) (0, 4) (c) (1, 4) (d) (4, 2)

14. Abscissa of a point is positive in:
(a) I and II quadrant (b) I and IV quadrant
(c) I quadrant only (d) II quadrant only

15. The perpendicular distance of the point P(3,4) from the y– axis is:
(a) 3 (b) 4 (c) 5 (d) 7

MCQ WORKSHEET-III

CLASS IX : CHAPTER - 3
COORDINATE GEOMETRY

1. The point (–2, –5) lies in the
(a) I quadrant (b) II quadrant (c) III quadrant (d) IV quadrant

2. The sign of x-coordinate of a point lying in third quadrant is
(a) + (b) – (c) ± (d) IV quadrant

3. The signs of respective x-coordinate and y-coordinates of a point lying 2nd quadrant are
(a) –, + (b) –, – (c) +, – (d) +, +

4. The point (0, 4) lies on
(a) I quadrant (b) negative x – axis (c) positive x – axis (d) y – axis

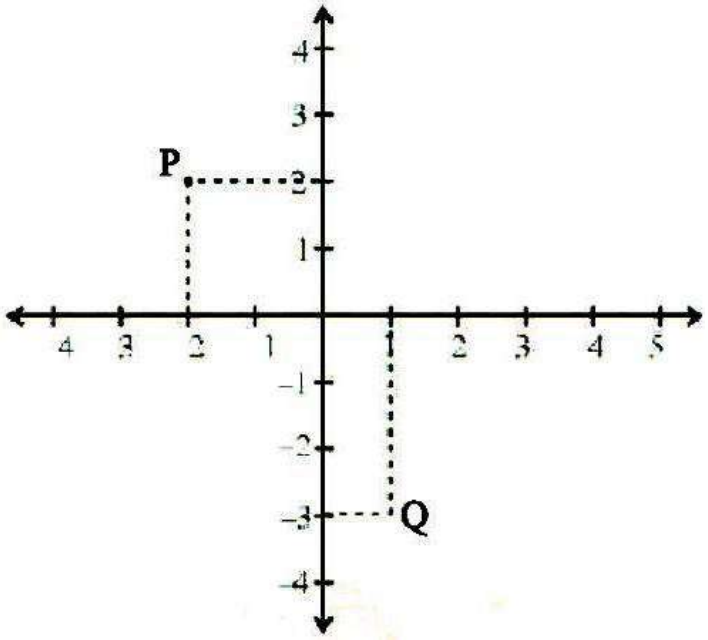
5. The y-coordinate of any point lying on x-axis is
(a) 0 (b) 1 (c) –1 (d) any number

6. The point where the two axes meet, is called
(a) x-coordinate (b) y- coordinate (c) quadrant (d) origin

7. The point (–5, 4) and (4, –5) are situated in
(a) same quadrant (b) I and III quadrant, respectively
(c) Different quadrants (d) IV and II quadrant, respectively

8. The figure obtained by plotting the points (2, 3), (–2, 3),(–2, –3) and (2, –3) is a
(a) trapezium (b) rectangle (c) square (d) rhombus

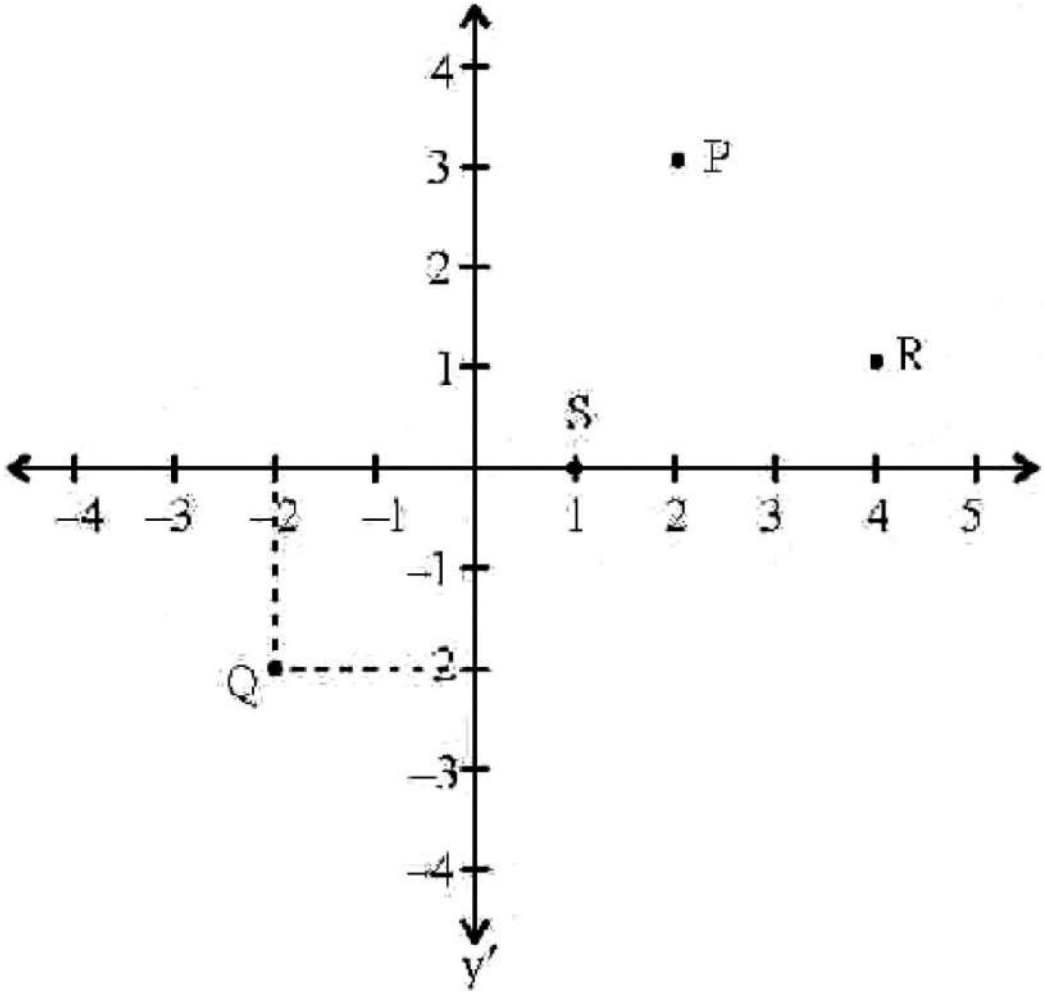
9. In the given figure, on the sides the respective coordinates of points P and Q respectively are:
(a) (–2, –2), (1, 3) (b) (–2, –2), (–1, 3) (c) (–2, 2), (1, –3) (d) (–2, 2), (1, 3)



10. The point (0, –3) lies on
(a) negative side of y – axis (b) negative side of x – axis
(c) positive side of x – axis (d) positive side of y – axis

11. If the coordinates of two points P and Q are (2, –3) and (–6, 5), then the value of (x-coordinate of P) – (x-coordinate of Q) is
(a) 2 (b) –6 (c) –8 (d) 8

12. The point whose y-coordinate is 3 in the given figure is
(a) P (b) Q (c) R (d) S



13. The coordinates of the point lying on the negative side of x-axis at a distance of 5 units from origin are
(a) (0, 5) (b) (0, –5) (c) (–5, 0) (d) (5, 0)

14. The distance of the (4, –3) from x – axis is
(a) 3 units (b) –3 units (c) 4 units (d) 5 units

15. The origin lies on
(a) x-axis only (b) both axes (c) y-axis only (d) none of the axes

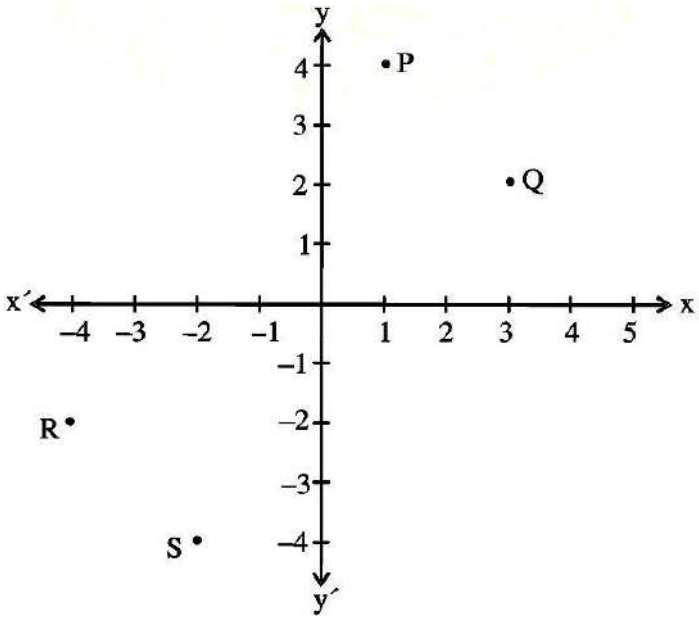
PRACTICE QUESTIONS
CLASS IX : CHAPTER - 3
COORDINATE GEOMETRY

1. Which of the following points lie in I and II quadrants?
(1, 1), (2, –3), (–2, 3), (-1, 1), (–3, –2), (4, 3)

2. Which of the following points lie on (a) x-axis (b) y-axis?
(5, 1), (8, 0), (0, 4), (–3, 0), (0, –3), (0, 5), (0, 0)

3. If the x-coordinate of a point is negative, it can lie in which quadrants?

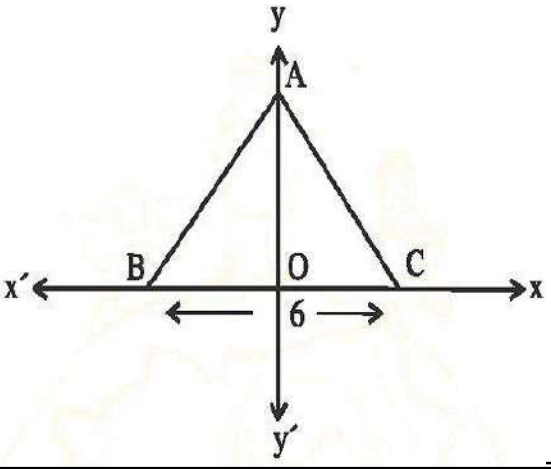
4. From the figure, write the coordinates of the point P, Q, R and S. Does the line joining P and Q pass through origin?



5. Write the coordinates of the following points:
(i) lying on both axes
(ii) lying on x-axis and with x-coordinate 4
(iii) lying on y-axis with y-coordinate –3.

6. The coordinates of the three vertices of a rectangle ABCD are A(3, 2), B(–4, 2), C(–4, 5). Plot these points and write the coordinates of D.

7. ABC is an equilateral triangle as shown in the figure. Find the coordinates of its vertices.



8. Plot the following points on a graph paper:

x	1	2	3	4	5
y	5	8	11	14	17

Join these points. What do you observe?

9. What is the name of horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?

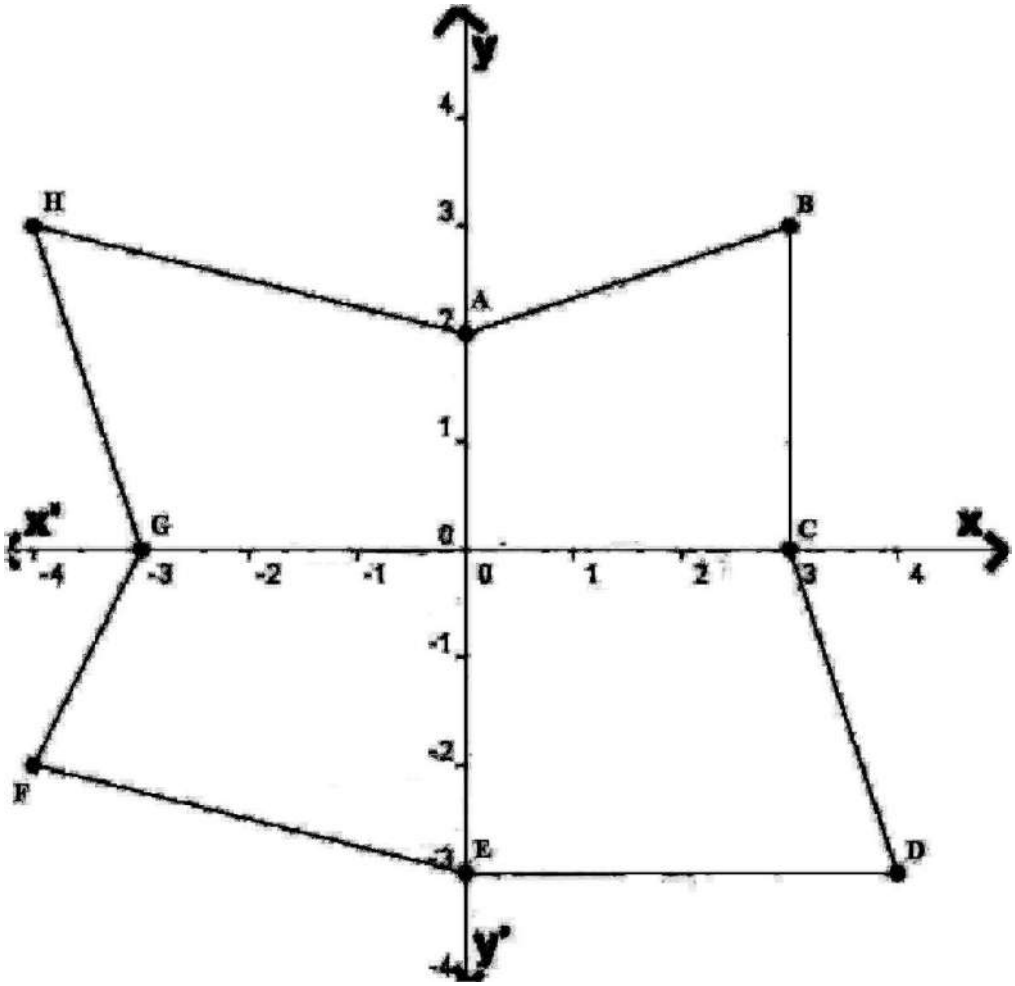
10. What is the name of each part of the plane formed by these two lines?

11. Write the name of the point where these two lines intersect.

12. Locate the points (5, 0), (0, 5), (2, 5), (5, 2), (–3, 5), (–3, –5), (5, –3) and (6, 1) in the Cartesian plane.

13. Draw the line passing through (2, 3) and (3, 2). Find the coordinates of the points at which this line meets the *x*-axis and *y*-axis.

14. Locate the coordinates of labelled points A, B, C, D, E, F, G and H in the following diagram:

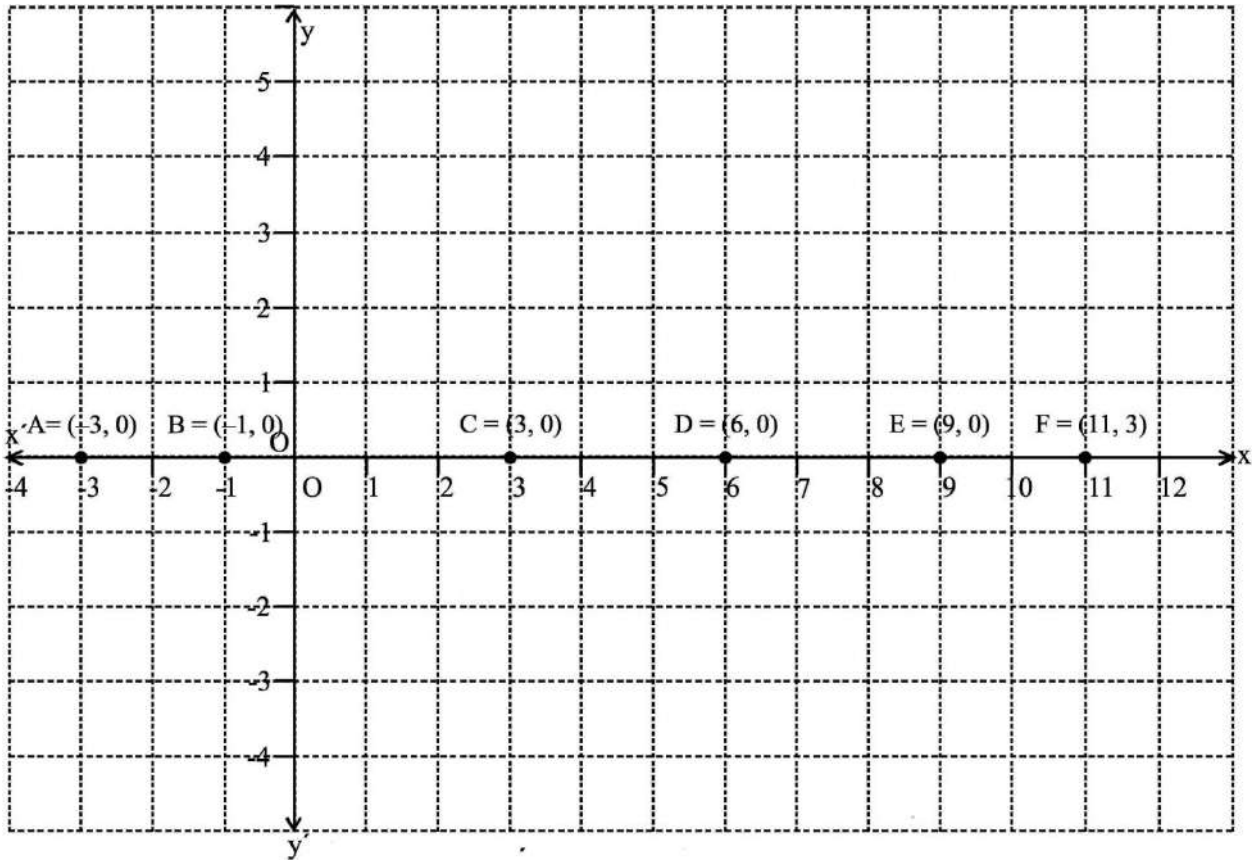


15. Plot the following ordered pairs of number (*x*, *y*) as points in the Cartesian plane. Use the scale 1cm = 1 unit on the axes.

x	–3	0	–1	4	2
y	7	–3.5	–3	4	–3

16. In which quadrant or on which axis do each of the points (– 2, 4), (3, – 1), (– 1, 0), (1, 2) and (– 3, – 5) lie? Verify your answer by locating them on the Cartesian plane.

17. Read the given graph and answer the following questions:



(a) Complete the table given below

Point	Location	Coordinates	Abscissa	Ordinates
A				
B				
C				
D				
E				
F				

(b) What are the coordinates of a general point on the x-axis?

18. Plot the points (x, y) given in the following table on the plane, choosing suitable units of distance on the axes.

x	–1	2	–4	2	–3
y	0	–5	2	1	2

19. Plot the following points and verify if they lie on a line. If they lie on a line, name it.

(i) (0, 2), (0, 5), (0, 6), (0, 3.5) (ii) A (1, 1), B (1, 2), C (1, 3), D (1, 4)

(iii) K (1, 3), L (2, 3), M (3, 3), N (4, 3) (iv) W (2, 6), X (3, 5), Y (5, 3), Z (6, 2)

20. Plot the following points on a graph sheet. Verify if they lie on a line

(a) A(4, 0), B(4, 2), C(4, 6), D(4, 2.5)

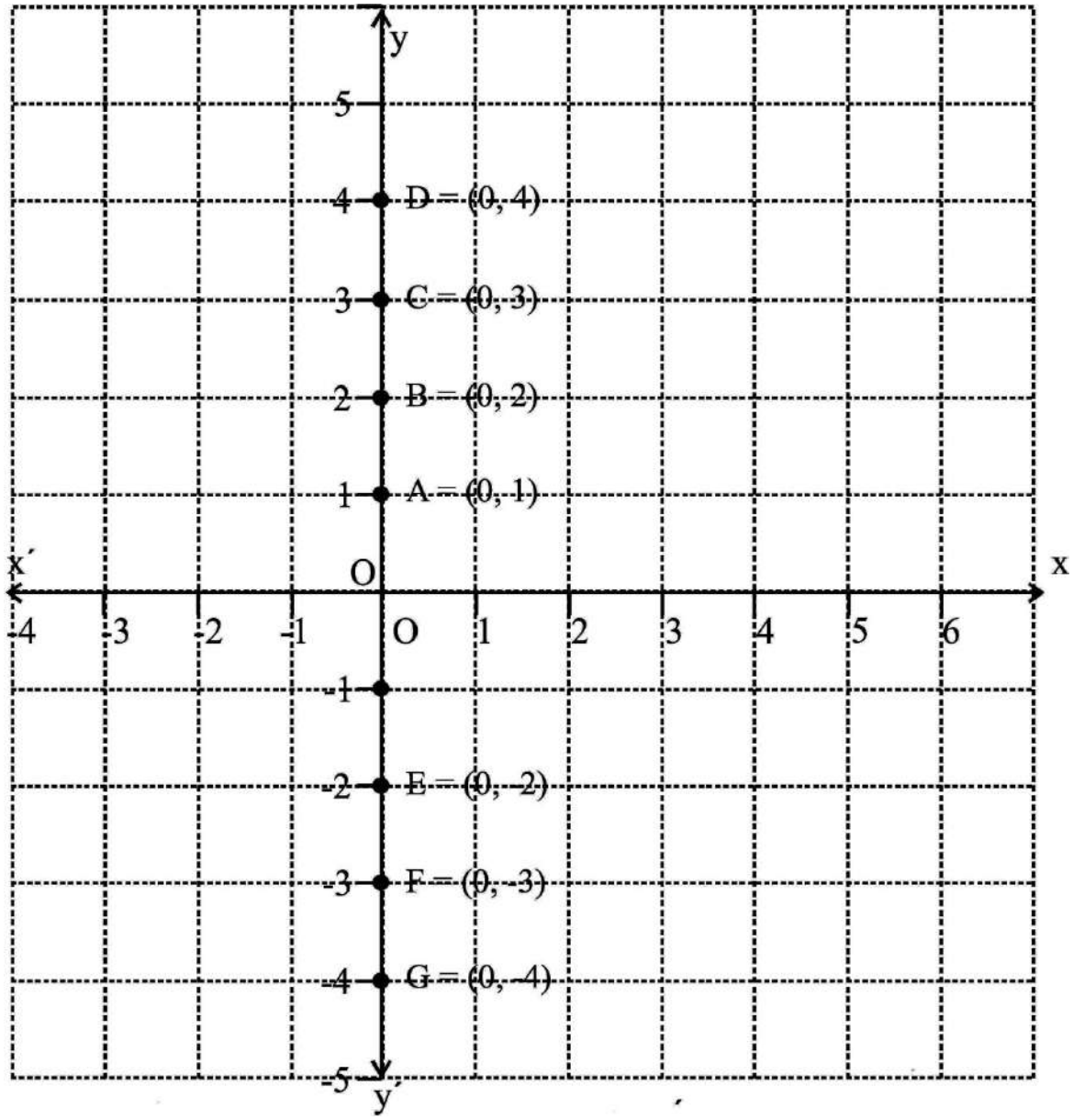
(b) P(1, 1), Q(2, 2), R(3, 3), S(4, 4)

(c) K(2, 3), L(5, 3), M(5, 5), N(2, 5)

21. In which quadrant or on which axis do each of the points (5, 0), (0, 5), (2, 5), (5, 2), (–3, 5), (–3, –5), (5, –3) and (6, 1) in the Cartesian plane.

22. Plot the points A (4, 4) and (–4, 4) on a graph sheet. Join the lines OA, OB and BA. What figure do you obtain.

23. Read the given graph and answer the following questions:



(a) Complete the table given below

Point	Location	Coordinates	Abscissa	Ordinates
A				
B				
C				
D				
E				
F				

(b) What are the coordinates of a general point on the y-axis?

24. Plot the point P (– 6, 2) and from it draw PM and PN as perpendiculars to *x*-axis and *y*-axis, respectively. Write the coordinates of the points M and N.

25. Plot the following points and write the name of the figure thus obtained : P(–3, 2), Q (–7, –3), R (6, –3), S (2, 2)

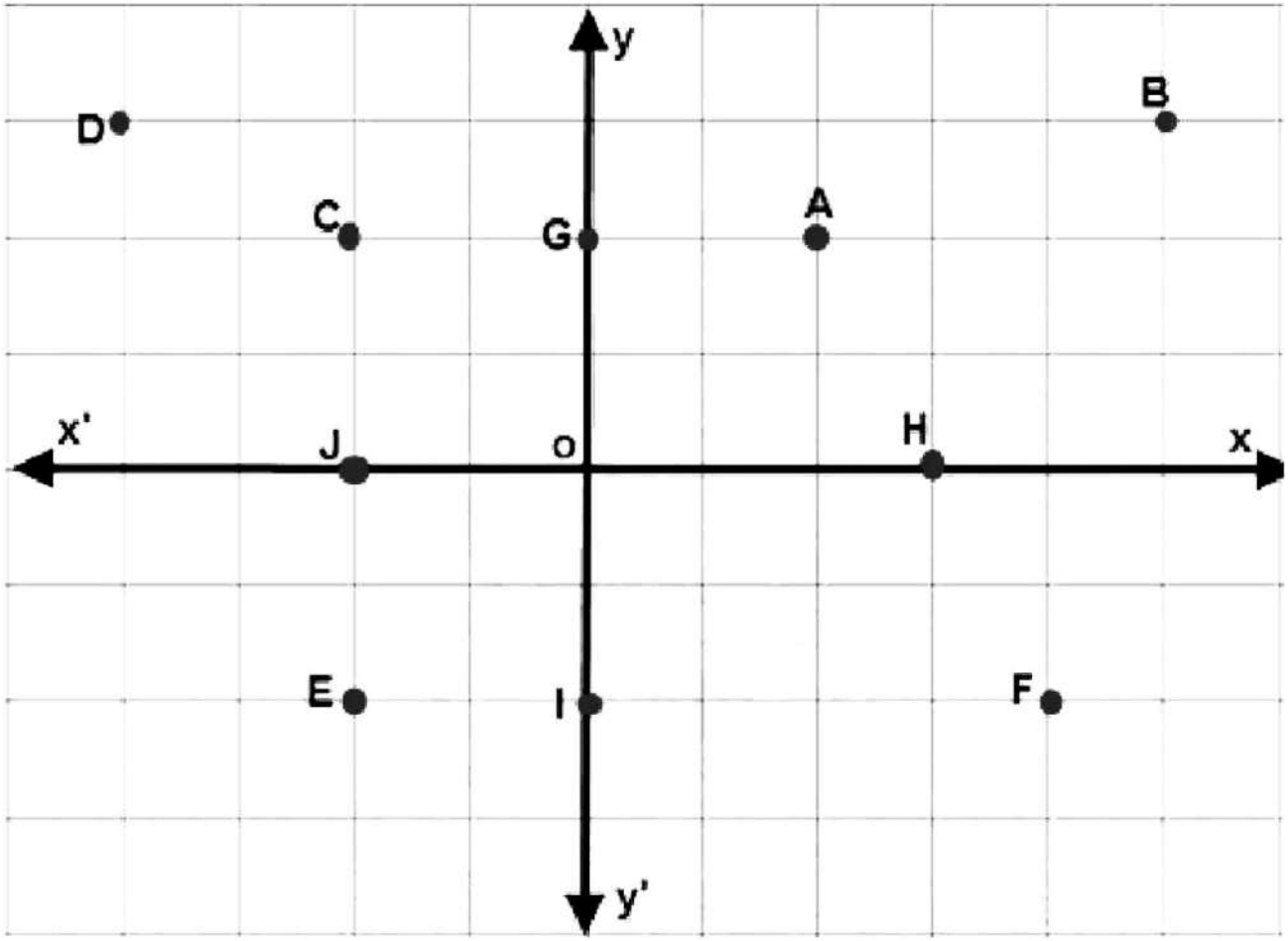
26. Plot the following points and check whether they are collinear or not :

(i) (1, 3), (– 1, – 1), (– 2, – 3)

(ii) (1, 1), (2, – 3), (– 1, – 2)

(iii) (0, 0), (2, 2), (5, 5)

27. Locate the position of marked points.



28. Complete the following table by putting a tick or a cross for the given points and their location.

Point	**I quadrant**	**II quadrant**	**III quadrant**	**IV quadrant**	**x-axis**	**y-axis**
(0, 0)						
(1, 2)						
(1, –2)						
(–2, 1)						
(–1, –2)						
(0, –2)						
(–2, 0)						
(7, 9)						

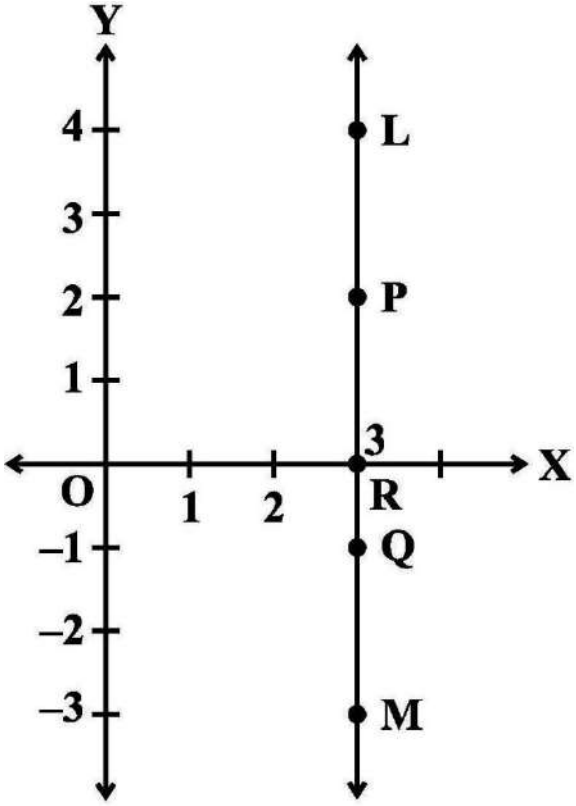
29. Plot the points (*x*, *y*) given by the following table:

x	2	4	–3	–2	3	0
y	4	2	0	5	–3	0

30. Without plotting the points indicate the quadrant in which they will lie, if
(i) ordinate is 5 and abscissa is – 3
(ii) abscissa is – 5 and ordinate is – 3
(iii) abscissa is – 5 and ordinate is 3
(iv) ordinate is 5 and abscissa is 3

31. In which quadrant or on which axis each of the following points lie?
(– 3, 5), (4, – 1), (2, 0), (2, 2), (– 3, – 6)

32. In the below Figure, LM is a line parallel to the *y*-axis at a distance of 3 units.
(i) What are the coordinates of the points P, R and Q?
(ii) What is the difference between the abscissa of the points L and M?



33. Which of the following points lie on *y*-axis?
A (1, 1), B (1, 0), C (0, 1), D (0, 0), E (0, – 1), F (– 1, 0), G (0, 5), H (–7, 0), I (3, 3).

34. Plot the points (*x*, *y*) given by the following table. Use scale 1 cm = 0.25 units

x	1.25	0.25	1.5	–1.75
y	–0.5	1	1.5	–0.25

35. A point lies on the *x*-axis at a distance of 7 units from the *y*-axis. What are its coordinates? What will be the coordinates if it lies on *y*-axis at a distance of –7 units from *x*-axis?

36. Find the coordinates of the point
(i) which lies on *x* and *y* axes both.
(ii) whose ordinate is – 4 and which lies on *y*-axis.
(iii) whose abscissa is 5 and which lies on *x*-axis.

37. Taking 0.5 cm as 1 unit, plot the following points on the graph paper : A (1, 3), B (– 3, – 1), C (1, – 4), D (– 2, 3), E (0, – 8), F (1, 0)

38. Plot the points P (1, 0), Q (4, 0) and S (1, 3). Find the coordinates of the point R such that PQRS is a square.

39. Three vertices of a rectangle are (3, 2), (– 4, 2) and (– 4, 5). Plot these points and find the coordinates of the fourth vertex.

40. Three vertices of a rectangle are (4, 2), (– 3, 2) and (– 3, 7). Plot these points and find the coordinates of the fourth vertex.

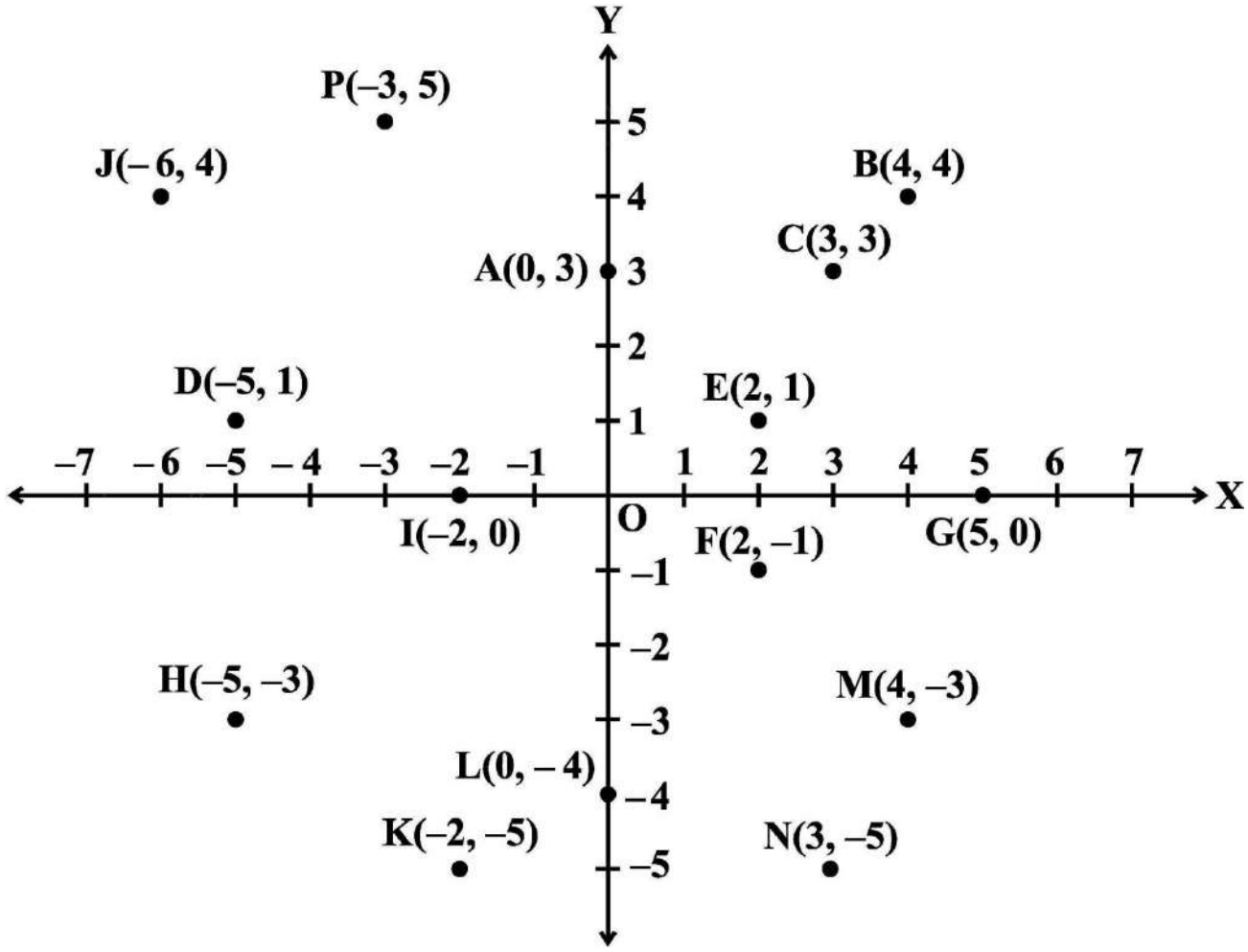
41. Points A (5, 3), B (– 2, 3) and D (5, – 4) are three vertices of a square ABCD. Plot these points on a graph paper and hence find the coordinates of the vertex C.

42. Write the coordinates of the vertices of a rectangle whose length and breadth are 5 and 3 units respectively, one vertex at the origin, the longer side lies on the *x*-axis and one of the vertices lies in the third quadrant.

43. Plot the points A (1, – 1) and B (4, 5) (i) Draw a line segment joining these points. Write the coordinates of a point on this line segment between the points A and B. (ii) Extend this line segment and write the coordinates of a point on this line which lies outside the line segment AB.

44. Plot the points P (0, –3), Q (0, 3) and R (6, 3). Find the coordinates of the point S such that PQRS is a square.

45. From the below graph, answer the following : (i) Write the points whose abscissa is 0. (ii) Write the points whose ordinate is 0. (iii) Write the points whose abscissa is – 5.



MCQ WORKSHEET-I

CLASS IX: CHAPTER - 5

INTRODUCTION TO EUCLID'S GEOMETRY

1. The number of dimensions, a solid has:
(a) 1 (b) 2 (c) 3 (d) 0

2. The number of dimensions, a surface has:
(a) 1 (b) 2 (c) 3 (d) 0

3. The number of dimensions, a point has:
(a) 1 (b) 2 (c) 3 (d) 0

4. The three steps from solids to points are:
(a) solids – surfaces – lines – points
(b) solids – lines – surfaces – points
(c) lines – points – surfaces - solids
(d) lines – surface – points – solids

5. Euclid's division his famous treatise "The Elements" into_____chapters:
(a) 13 (b) 12 (c) 11 (d) 9

6. The total number of propositions in the Elements are:
(a) 465 (b) 460 (c) 13 (d) 55

7. Boundaries of solids are:
(a) surfaces (b) curves (c) lines (d) points

8. Boundaries of surfaces are:
(a) surfaces (b) curves (c) lines (d) points

9. A pyramid is solid figure, the base of which is:
(a) only a triangle (b) only a square
(c) only a rectangle (d) any polygon

10. In Indus valley civilization (about 300 B. C.) the bricks used for construction work were having dimensions in the ratio :
(a) 1 : 3 : 4 (b) 4 : 2 : 1 (c) 4 : 4 : 1 (d) 4 : 3 : 2

11. The side faces of a pyramid are
(a) triangles (b) squares (c) polygons (d) trapeziums

12. Thales belongs to the country:
(a) Bablyonia (b) Egypt (c) Greece (d) Rome.

MCQ WORKSHEET-II

CLASS IX: CHAPTER - 5

INTRODUCTION TO EUCLID'S GEOMETRY

1. Pythagoras was a student of:
(a) Thales (b) Euclid (c) Both (a) and (b) (d) Archimedes.

2. Euclid belongs to the country:
(a) Bablyonia (b) Egypt (c) Greece (d) Rome.

3. It is known that if $x + y = 10$ then $x + y + z = 10 + z$. The Euclid's axiom that illustrates this statement is:
(a) 1^{st} Axiom (b) 2^{nd} Axiom (c) 3^{rd} Axiom (d) 4^{th} Axiom

4. In ancient India, the shapes of altrars used for house hold rituals were:
(a) Squares and circles
(b) Triangles and rectangles
(c) Trapeziums and pyramids
(d) Rectangles and squares

5. The number of interwoven isosceles triangles in Sriyantras (in the Atharvaveda) is:
(a) 7 (b) 8 (c) 9 (d) 11

6. Greek's emphasized on:
(a) Inductive reasoning (b) Deductive reasoning
(c) Both (a) and (b) (d) Practical use of geometry

7. In ancient India, Altrars with combination of shapes like rectangles, triangles and trapeziums were used for:
(a) Public worship (b) Household rituals
(c) Both (a) and (b) (d) None of these

8. Which of the following needs a proof?
(a) Theorem (b) Axiom (c) Definition (d) Postulate

9. Two distinct lines cannot have more than_____point in common
(a) 1 (b) 2 (c) 3 (d) infinite

10. A_____may be drawn from any one point to any other point
(a) solid (b) plane surface
(c) straight line (d) none of these

MCQ WORKSHEET-III

CLASS IX: CHAPTER - 5

INTRODUCTION TO EUCLID'S GEOMETRY

1. According to Euclid's definition, the ends of a line are
(a) breadthless (b)points (c)lengthless (d) none of these

2. According to listing in the class IX book of NCERT, the first axiom is
(a) Things which are equal to the same thing, are equal to each other

(b) If equal are added to equals, the result are equal

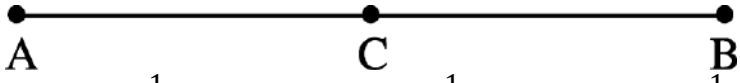
(c) If equals are subtracted from equals, the results are equal

(d) The whole is greater than its part.

3. Things which are three times of the same thing are
(a) equal to each other (b) not equal to each other
(c) half of the same thing (d) double of the same thing

4. A solid has
(a) no dimension (b) one dimension
(c)two dimension (d) three dimension

5. If a point C lies between two points A and B such that AC = BC, then



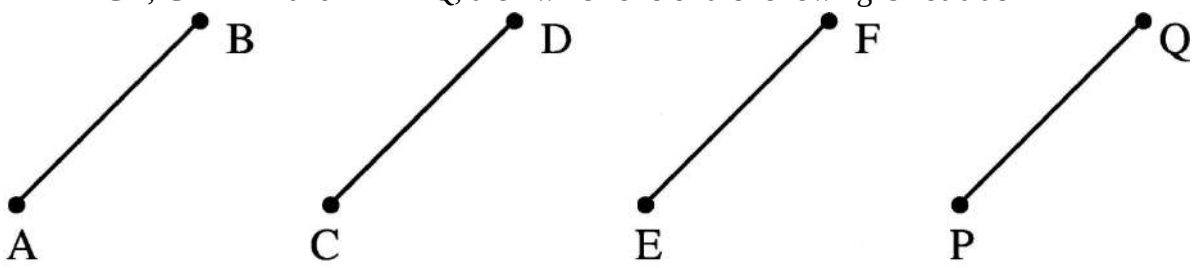
(a) AC = AB (b) AC = $\frac{1}{2}$ AB (c) AB = $\frac{1}{2}$ AC (d) AC= $\frac{1}{3}$AB

6. $\angle A = \angle B$ and $\angle B = \angle C$. According to which axiom of Euclid the relation between $\angle A$ and $\angle C$ is established?
(a) I (b) II (c) III (d) IV

7. Two distinct two points
(a) any point in common (b) one point in common
(c)two points in common (d) none of the these

8. Through two points
(a) no line can be drawn (b) a unique line can be drawn
(c) more than one line can be drawn (d) none of these

9. If AB = CD, CD = EF and EF = PQ, then which one of the following is not true



(a)AB = PQ (b)CD = PQ (c) AB = EF (d) AB ≠ CD

10. For every line l and for every point P (not on l), there does not exist a unique line through P.
(a) which is || to l (b)which is ⊥ to l (c) which is coincident with l (d) none of these

11. Euclid stated that all right angles are equal to each other in the form of
(a) a theorem (b) an axiom (c) a definition (d) a postulate

12. Lines are parallel if they do not intersect is stated in the form of
(a) a proof (b) an axiom (c) a definition (d) a postulate

13. Euclid stated that all right angles are equal to each other in the form of
(a) an axiom (b) a definition (c) a postulate (d) a proof

14. 'Lines are parallel if they do not intersect' is stated in the form of
(a) an axiom (b) a definition (c) a postulate (d) a proof

PRACTICE QUESTIONS

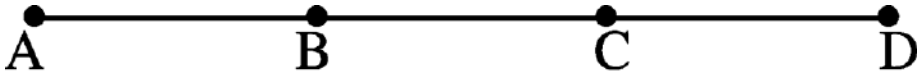
CLASS IX: CHAPTER - 5

INTRODUCTION TO EUCLID'S GEOMETRY

1. What was name of the famous book of Euclid? How many chapters it had?

2. It is known that x + y =10. Is it true to say that x + y + p = 10 + p ?

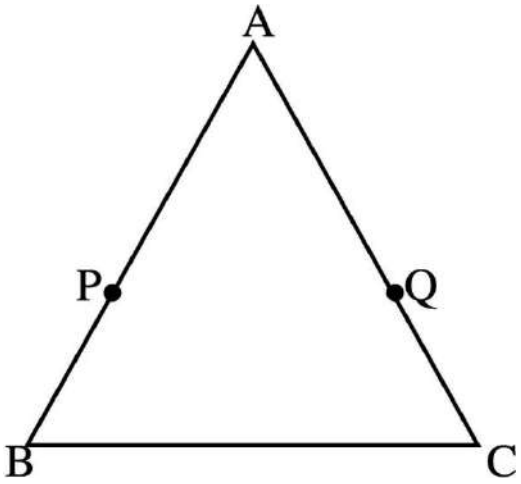
3. If AB = CD, can you say that AC = BD? Give reasons for your answer.



4. If $\angle 1 = \angle 2$, $\angle 3 = \angle 4$ and $\angle 2 = \angle 4$, what is the relation between $\angle 1$ and $\angle 2$. Give reasons for your answer.

5. If AB = 4 cm, CD = 8cm and PQ = 2 times AB. Are CD and Pq equal? Which axiom is used for proving this?

6. AB = AC and AP = AQ. Can you say that BP = CQ? Which axioms are you using for this?



7. l = 3 cm long and lengths of lines m and n are three-fourth the length of l. Are m and n equal?

8. How would you rewrite Euclid's fifth postulate so that it would be easier to understand?

9. Does Euclid's fifth postulate imply the existence of parallel lines? Explain.

10. Consider the following statement : There exists a pair of straight lines that are everywhere equidistant from one another. Is this statement a direct consequence of Euclid's fifth postulate? Explain.

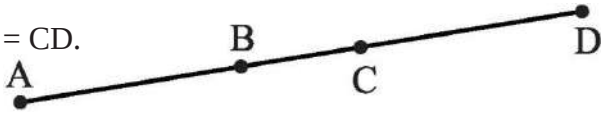
11. If A, B and C are three points on a line, and B lies between A and C, then prove that AB + BC = AC.

12. Prove that an equilateral triangle can be constructed on any given line segment.

13. If a point C lies between two points A and B such that AC = BC, then prove that AC = $\frac{1}{2}$AB.

Explain by drawing the figure.

14. In adjoining figure, if AC = BD, then prove that AB = CD.

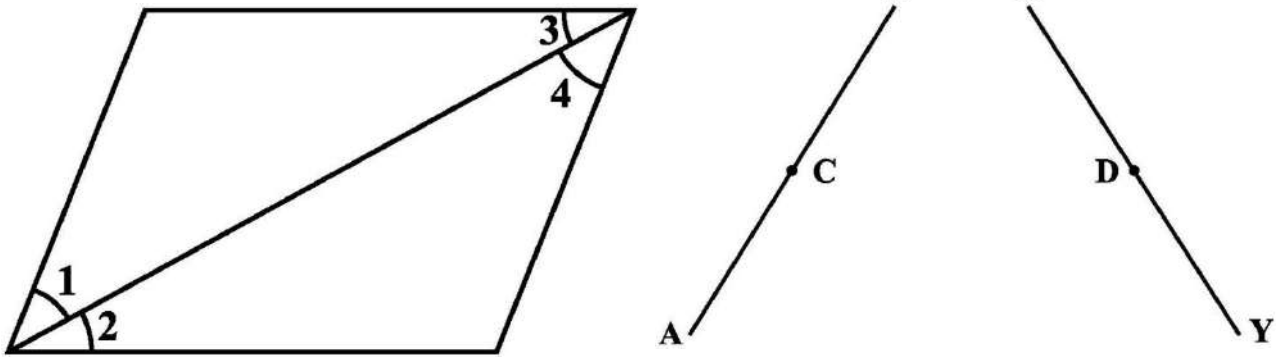


15. If a point C is called a mid-point of line segment AB. Prove that every line segment has one and only one mid-point.

16. Ram and Ravi have the same weight. If they each gain weight by 2 kg, how will their new weights be compared?

17. Solve the equation $a - 15 = 25$ and state which axiom do you use here.

18. In the Fig., if $\angle 1 = \angle 3$, $\angle 2 = \angle 4$ and $\angle 3 = \angle 4$, write the relation between $\angle 1$ and $\angle 2$, using an Euclid's axiom.

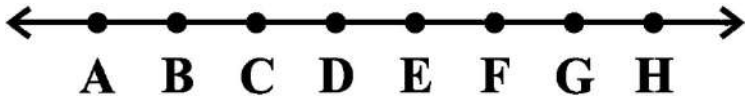


19. In the above right sided Figure, we have : AC = XD, C is the mid-point of AB and D is the mid-point of XY. Using an Euclid's axiom, show that AB = XY.

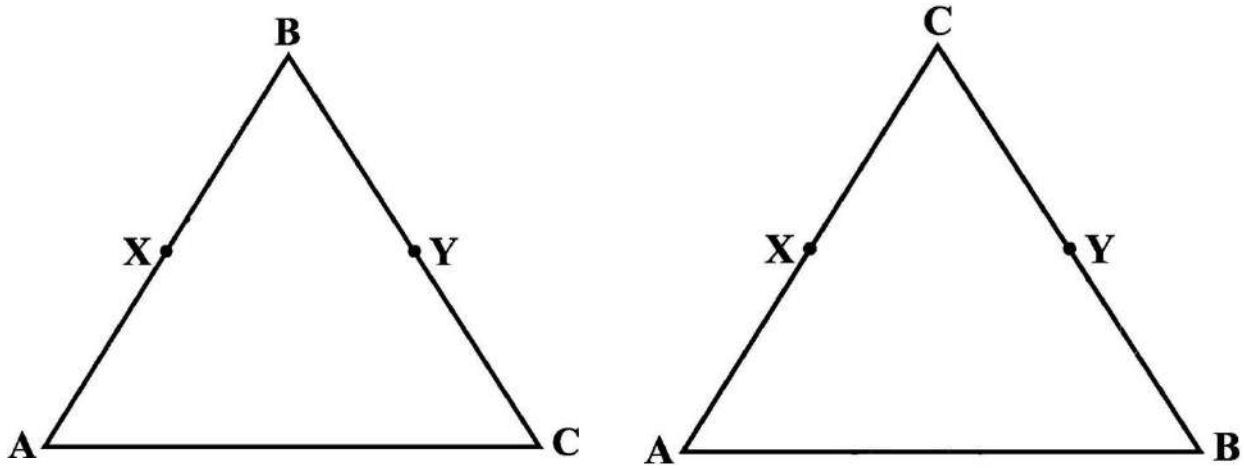
20. Solve using appropriate Euclid's axiom: "Two salesmen make equal sales during the month of August. In September, each salesman doubles his sale of the month of August. Compare their sales in September."

21. Solve using appropriate Euclid's axiom: It is known that $x + y = 10$ and that $x = z$. Show that $z + y = 10$?

22. Solve using appropriate Euclid's axiom: Look at the below Figure. Show that length AH > sum of lengths of AB + BC + CD.



23. Solve using appropriate Euclid's axiom : In the below Figure, we have AB = BC, BX = BY. Show that AX = CY.



24. Solve using appropriate Euclid's axiom : In the above right sided Figure, we have X and Y are the mid-points of AC and BC and AX = CY. Show that AC = BC.

MCQ WORKSHEET-I

CLASS IX: CHAPTER - 6
LINES AND ANGLES

1. If a ray stands on a line then the sum of the adjacent angles so formed is
(a) 100^0 (b) 180^0 c) 90^0 (d) 360^0

2. The sum of all the angles around a point is
(a) 100^0 (b) 180^0 c) 90^0 (d) 360^0

3. The sum of all the angles formed on the same side of a line at a given point on the line is
(a) 100^0 (b) 180^0 c) 90^0 (d) 360^0

4. The angle which is four times its complement is
(a) 60^0 (b) 30^0 c) 45^0 (d) 72^0

5. The angle which is five times its supplement is
(a) 150^0 (b) 180^0 c) 90^0 (d) 360^0

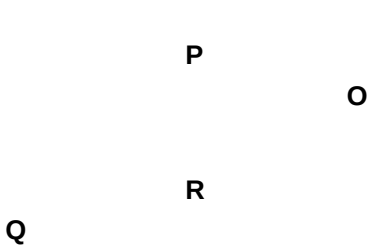
6. The measure of an angle which is equal to its complement is
(a) 60^0 (b) 30^0 c) 45^0 (d) 15^0

7. The measure of an angle which is equal to its supplement is
(a) 100^0 (b) 75^0 c) 90^0 (d) 60^0

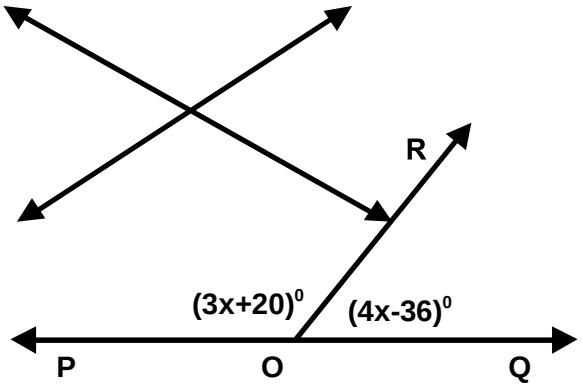
8. If two parallel lines are intersected by a transversal, then the bisectors of the two pairs of interior angles enclose
(a) a square (b) a rectangle c) a parallelogram (d) a trapezium

9. Two adjacent angles on a straight line are in the ratio 5 : 4. then the measure of each one of these angles are
(a) 100^0 and 80^0 (b) 75^0 and 105^0 c) 90^0 and 90^0 (d) 60^0 and 120^0

10. Two lines PQ and RS intersect at O. If $\angle POR = 50^0$, then value of $\angle ROQ$ is
(a) 120^0 (b) 130^0 c) 90^0 (d) 150^0



11. In the adjoining figure the value of x is
(a) 25^0 (b) 28^0 c) 30^0 (d) 60^0



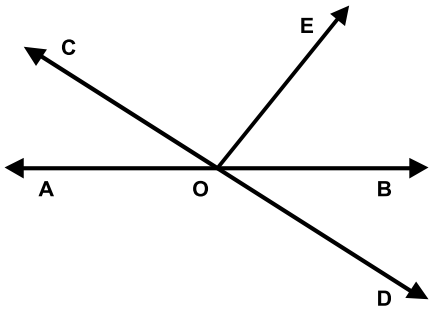
12. If two straight lines intersect each other in such a way that one of the angles so formed measure 90^0, then each of the remaining angles measures is
(a) 50^0 (b) 75^0 c) 90^0 (d) 60^0

MCQ WORKSHEET-II

CLASS IX: CHAPTER - 6

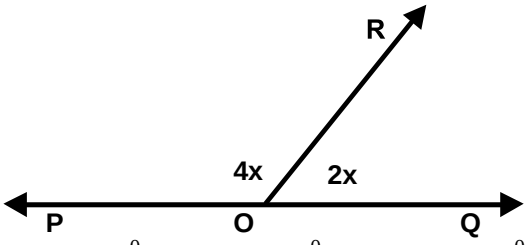
LINES AND ANGLES

1. In fig. AB and CD intersect each other at O. If $\angle AOC + \angle BOE = 70^0$ and $\angle BOD = 40^0$ then the value of $\angle BOE$ is



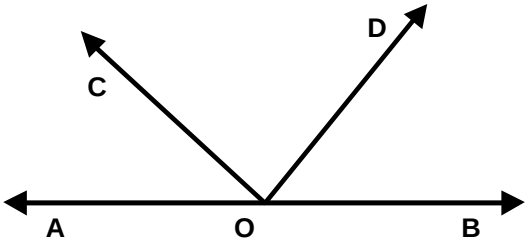
(a) 30^0 (b) 110^0 c) 120^0 (d) 150^0

2. In fig. POQ is a line, $\angle POR = 4x$ and $\angle QOR = 2x$ then the value of x is



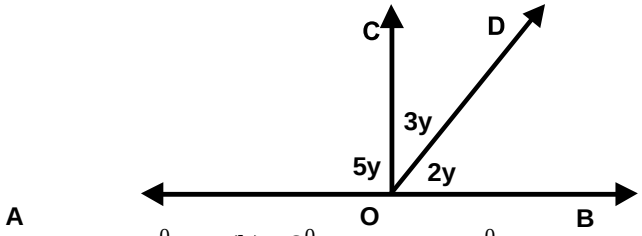
(a) 50^0 (b) 20^0 c) 30^0 (d) 90^0

3. In the given fig. $\angle AOC + \angle BOD = 75^0$, then the value of $\angle COD$ is



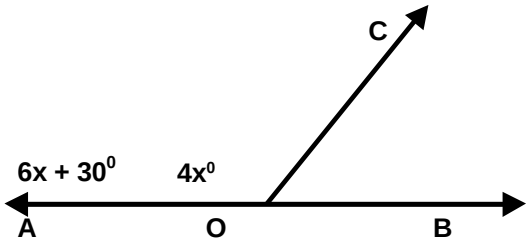
(a) 130^0 (b) 105 c) 120^0 (d) 75^0

4. In the fig. the value of y is:



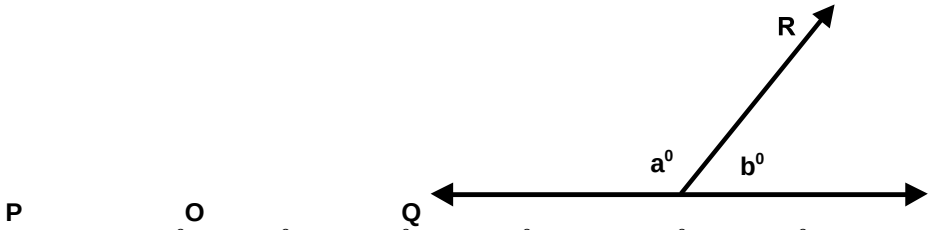
(a) 60^0 (b) 18^0 c) 30^0 (d) 90^0

5. In fig., the value of x is:



(a) 60^0 (b) 15^0 c) 30^0 (d) 45^0

6. In fig. $\angle POR$ and $\angle QOR$ form a linear pair if $a - b = 80^0$ then values of a and b respectively are:



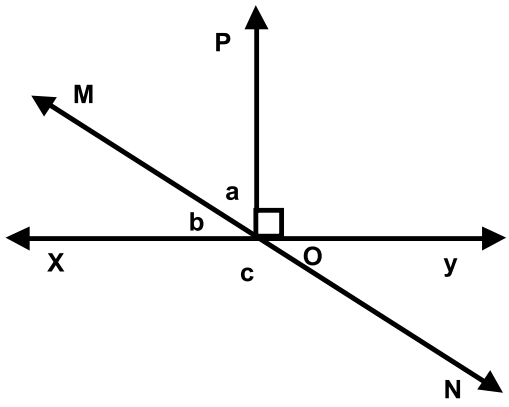
(a) 130^0 and 50^0 (b) 50^0 and 130^0 c) 60^0 and 120^0 (d) 40^0 and 140^0

7. For two parallel lines sum of interior angles on the same side of a transversal line is

(a) 100^0 (b) 180^0 c) 90^0 (d) 360^0

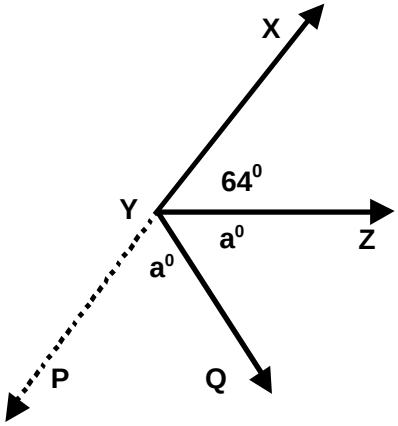
8. In fig., lines XY and MN intersect each other at point O. If $\angle POY = 90^0$ and a : b = 2 : 3 then the value of $\angle C$ is

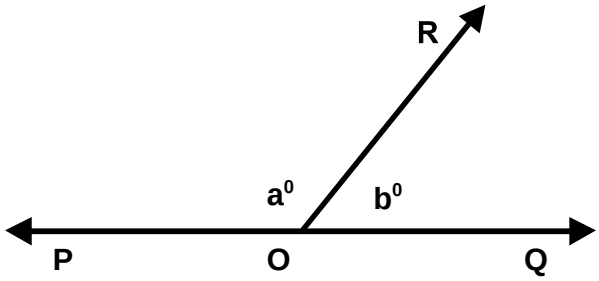
(a) 140^0 (b) 120^0 c) 80^0 (d) 95^0



9. In fig. $\angle XYZ = 640$ and XY is produced to point P. If ray YQ bisect $\angle ZYP$ then the value of $\angle XYQ$ is

(a) 122^0 (b) 126^0 c) 302^0 (d) 258^0

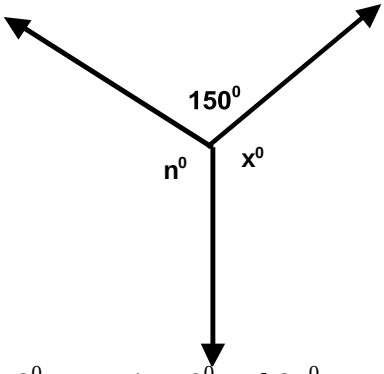




10. In fig., b is more than one-third of a right angle than a. The values of a and b are:

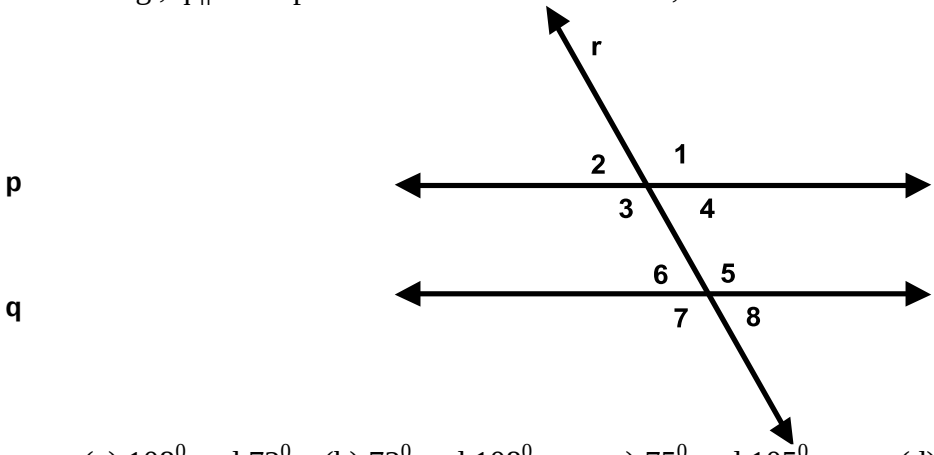
(a) 95^0 and 85^0 (b) 105^0 and 75^0 c) 60^0 and 120^0 (d) 65^0 and 115^0

11. In fig., $n - x = 3^0$ then values of x and n are:



(a) 126^0 and 129^0 (b) 125^0 and 28^0 c) 150^0 and 95^0 (d) 135^0 and 65^0

12. In fig., q || r and p is transversal. If $\angle 1$ and $\angle 2$, 3 : 2 then the values of $\angle 3$ and $\angle 4$ are:



(a) 108^0 and 72^0 (b) 72^0 and 108^0 c) 75^0 and 105^0 (d) 85^0 and 95^0

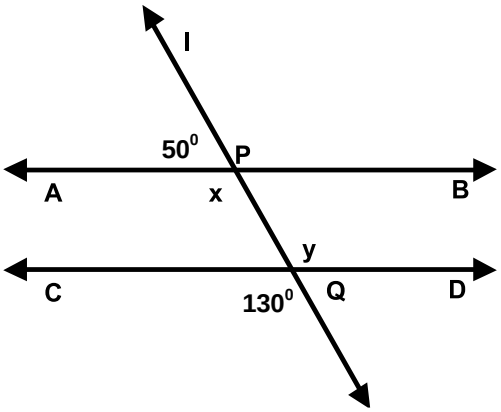
MCQ WORKSHEET-III

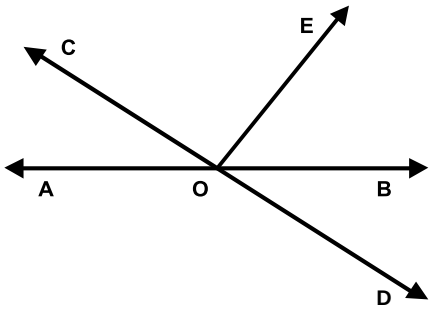
CLASS IX: CHAPTER - 6

LINES AND ANGLES

1. In fig. the values of x and y are equal to:

(a) 130^0 (b) 150^0 c) 160^0 (d) 135^0

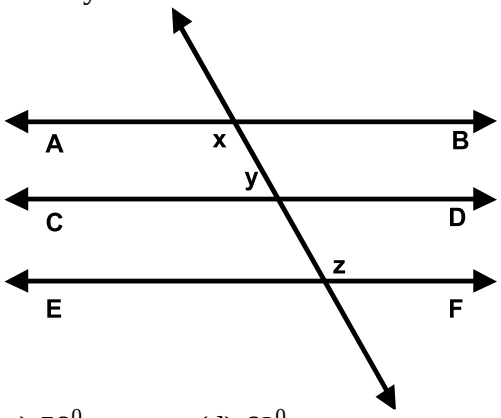




2. In fig. AB and CD intersect each other at O. If $\angle AOC + \angle BOE = 70^0$ and $\angle BOD = 40^0$ then the value of $\angle COE$ is

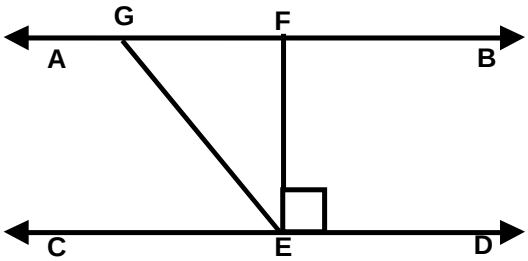
(a) 250^0 (b) 70^0 c) 30^0 (d) 50^0

3. In fig, if AB || CD, CD || EF and y : z = 3 : 7 then value of x is:

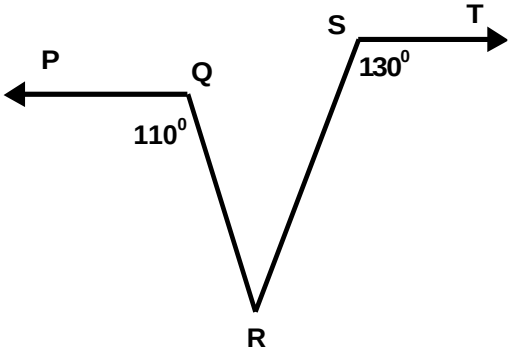


(a) 126^0 (b) 120^0 c) 58^0 (d) 62^0

4. In fig, if AB || CD, EF $\perp$ CD and $\angle GED = 126^0$ then the value of $\angle AGE$ is



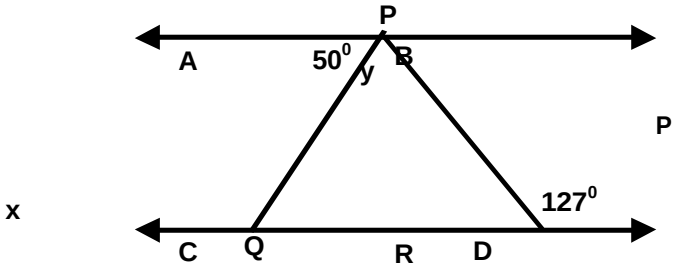
(a) 126^0 (b) 120^0 c) 128^0 (d) 54^0



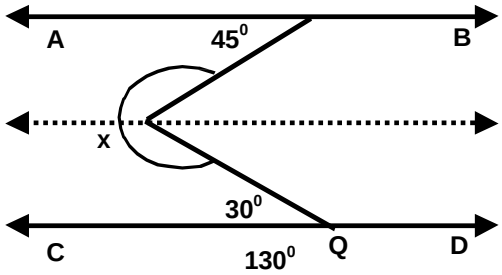
5. In fig, if PQ || ST, $\angle PQR = 110^0$ and $\angle RST = 130^0$ then the value of $\angle QRS$ is

(a) 60^0 (b) 120^0 c) 80^0 (d) 90^0

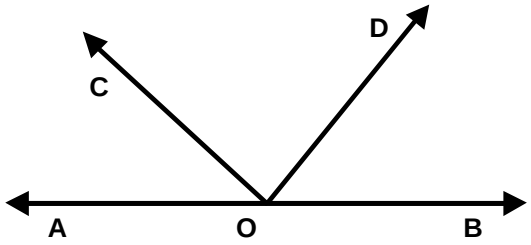
6. In fig., AB || CD, $\angle APQ = 50^0$, $\angle PRD = 127^0$, then the value of x and y respectively are
(a) 50^0 and 77^0 (b) 40^0 and 85^0 c) 60^0 and 90^0 (d) 85^0 and 75^0



7. In fig, AB || CD, the value of x is:
(a) 185^0 (b) 280^0 c) 285^0 (d) 195^0

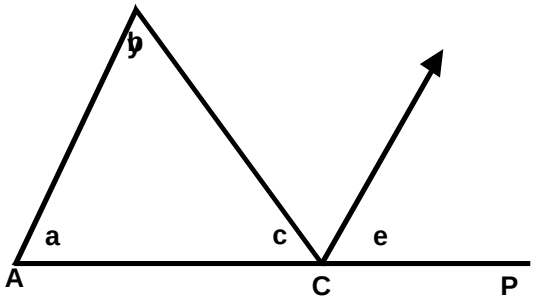


8. In fig, if $\angle AOC$, $\angle COD$ are equal and $\angle BOD$ is a right angle, then the values of $\angle AOC$ and $\angle COD$ are:
(a) 60^0 (b) 30^0 c) 45^0 (d) 90^0



9. In fig, the sum of $\angle a$ and $\angle b$ is:
(a) $\angle c + \angle d$ (b) $\angle d + \angle e$
(c) $\angle b + \angle c$ (d) $\angle a + \angle c$

B
Q
d



10. In triangle interior opposite angle is always less than:
(a) any angle of the triangle (b) opposite angle
(c) right angle (d) exterior angle

11. In a triangle sum of two interior opposite angles is always equal to:
(a) third angle (b) opposite angle
(c) right angle (d) none of these

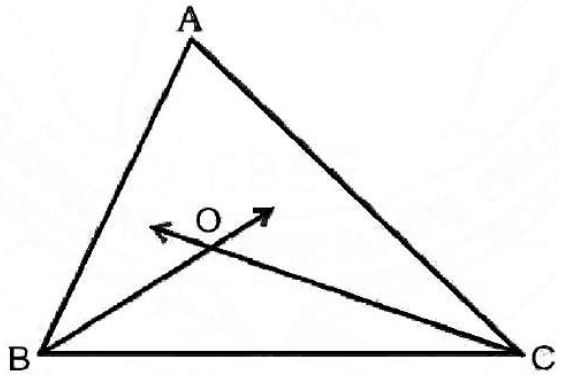
12. In a triangle exterior angle is always greater than:
(a) third angle (b) interior opposite angles
(c) right angle (d) none of these

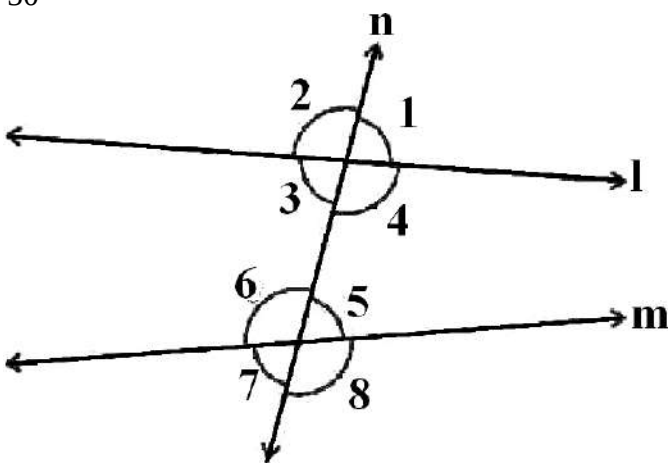
MCQ WORKSHEET-IV

CLASS IX: CHAPTER - 6
LINES AND ANGLES

1. What is the common between the three angles of a triangle and a linear pair
(a) angles are equal (b) in both cases sum of angle is 180^0.
(c) In triangle there are three angles and in linear pair there are two angles (d) none of these.

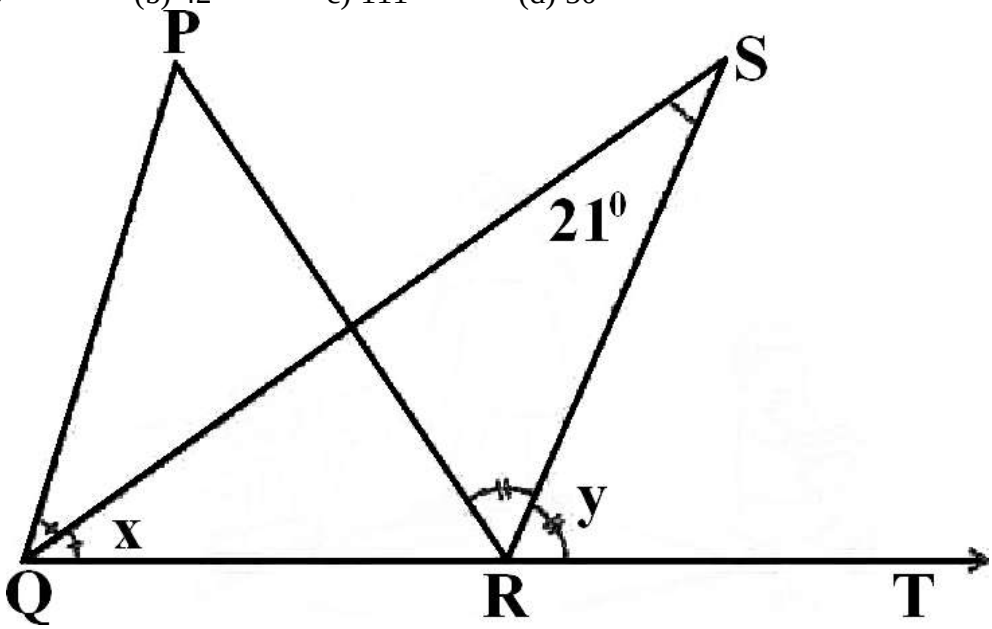
2. In the given below left figure, the bisectors of $\angle ABC$ and $\angle BCA$, intersect each other at point O. If $\angle BOC = 100^0$, the $\angle A$ is
(a) 30^0 (b) 20^0 c) 40^0 (d) 50^0





3. In the given above right sided figure, $\angle 2$ and $\angle 8$ are known as
(a) exterior angles (b) exterior angles on the same side of transversal.
(c) alternate angles (d) alternate exterior angles.

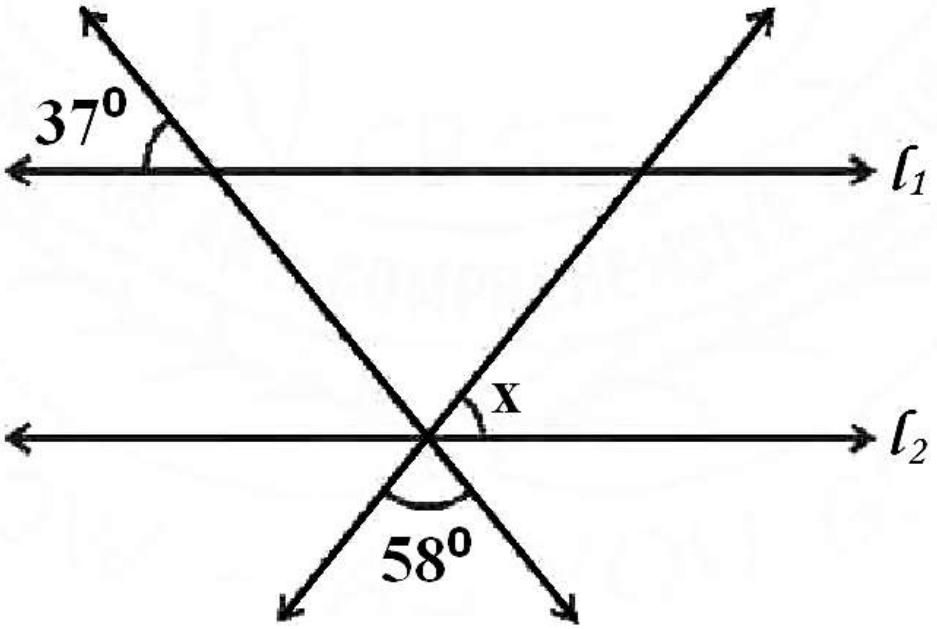
4. In the given figure, measure of $\angle QPR$ is
(a) 10.5^0 (b) 42^0 c) 111^0 (d) 50^0



5. An angle is 200 more than three times the given angle. If the two angles are supplementary the angles are
(a) 20^0 and 160^0 (b) 40^0 and 140^0 c) 60^0 and 120^0 (d) 70^0 and 110^0

6. In figure, if $l_1 \parallel l_2$, what is the value of x

(a) 90^0 (b) 85^0 c) 75^0 (d) 70^0



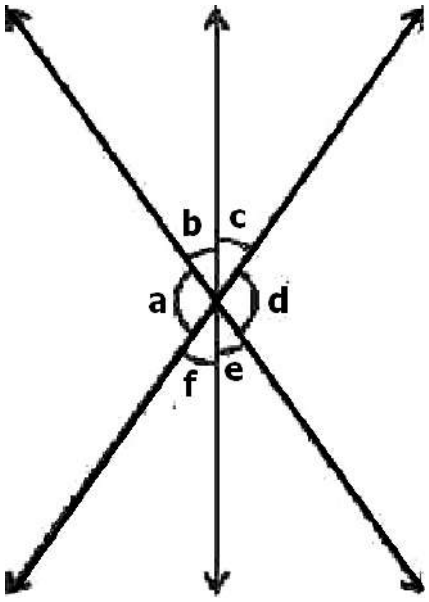
7. If a wheel has six spokes equally spaced, then the measure of the angle between two adjacent spokes is

(a) 90^0 (b) 30^0 c) 60^0 (d) 180^0

8. In figure, which of the following statements must be true?

(i) a + b = d + c (ii) $a + c + e = 180^0$ (iii) b + f = c + e

(a) (i) only (b) (ii) only c) (iii) only (d) (ii) and (iii) both



9. The angle which is two times its complement is

(a) 60^0 (b) 30^0 c) 45^0 (d) 72^0

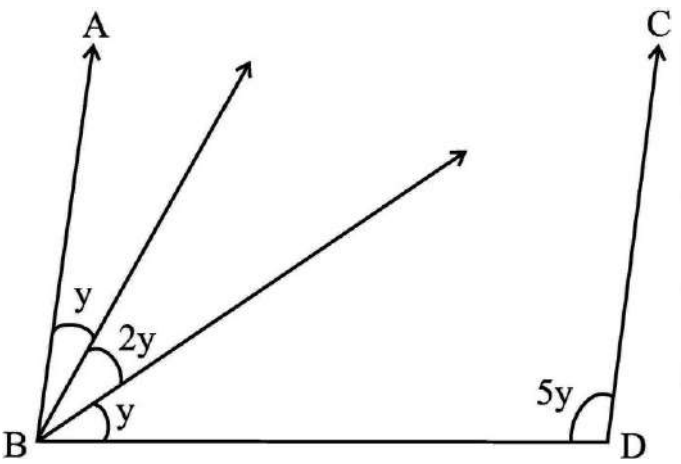
10. The angle which is two times its supplement is

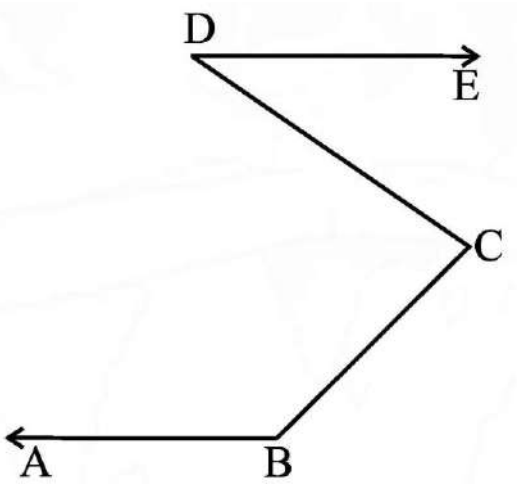
(a) 150^0 (b) 60^0 c) 90^0 (d) 120^0

PRACTICE QUESTIONS

CLASS IX: CHAPTER - 6
LINES AND ANGLES

1. In the figure, if AB || CD, then what is the value of y.





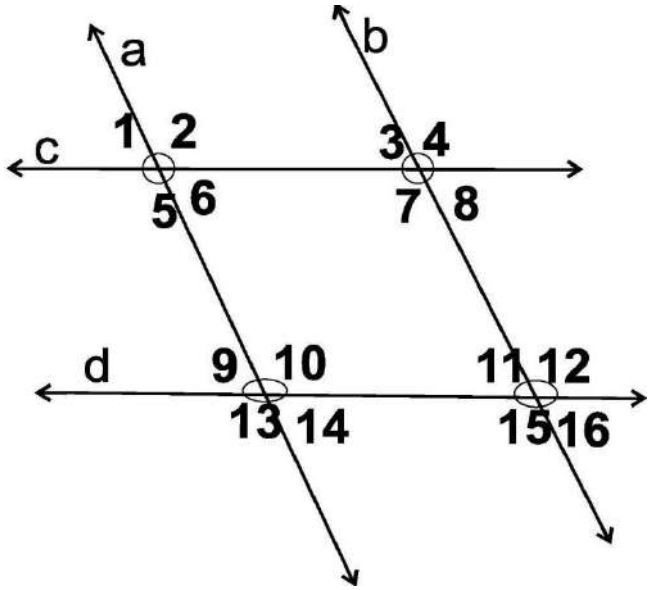
2. In the given above right sided figure, BA || DE. Prove that $\angle ABC + \angle BCD = 180^0 + \angle CDE$

3. In the given figure a || b and c || d.

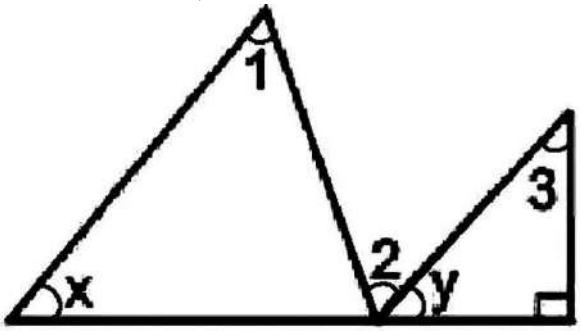
(i) Name all the angles equal to $\angle 5$. Justify the your answer

(ii) Name all angles supplementary to $\angle 8$. Justify the your answer

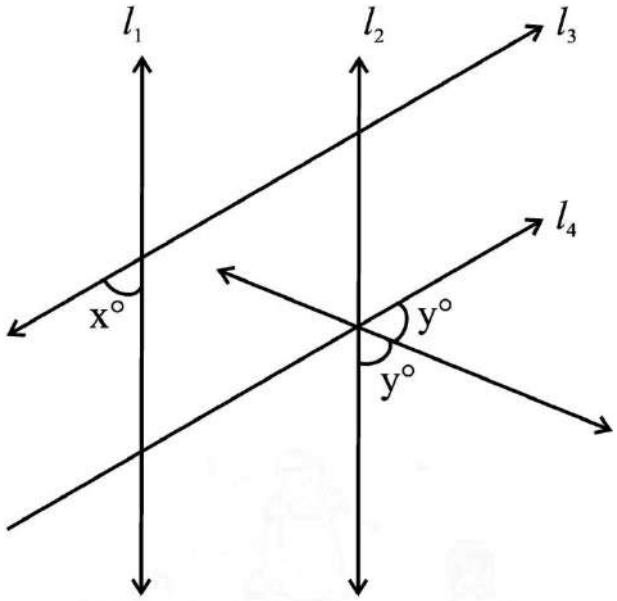
(iii) If $\angle 4 = 110^0$, then find all other angles. What all properties of parallel lines you have used here?



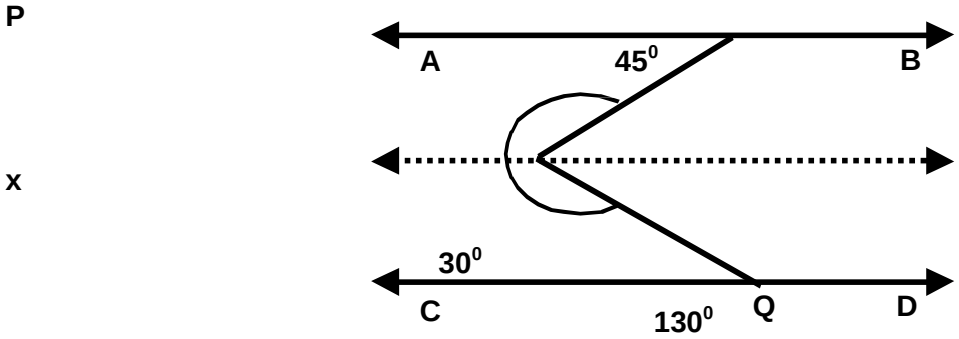
4. If $m\angle 1=53^0$, $m\angle 2 = 65^0$ and $m\angle 3 = 43^0$, find the measures of $\angle x$ and $\angle y$. Justify your answer.



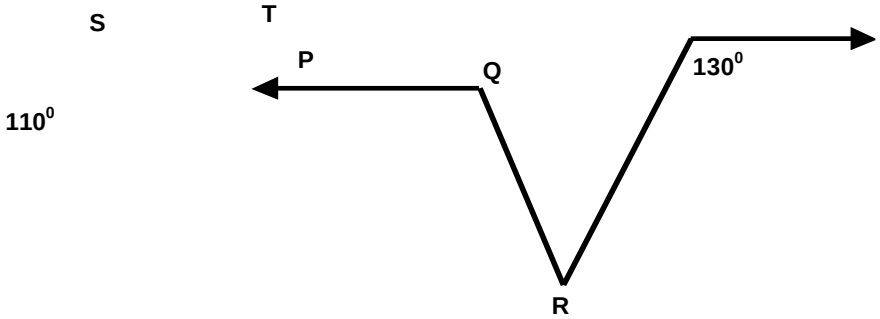
5. In figure, if $l_1 \parallel l_2$ and $l_3 \parallel l_4$. What is y in terms of x?



6. In fig, find the value of x



7. In fig, if PQ || ST, $\angle PQR = 110^0$ and $\angle RST = 130^0$ then find the value of $\angle QRS$.



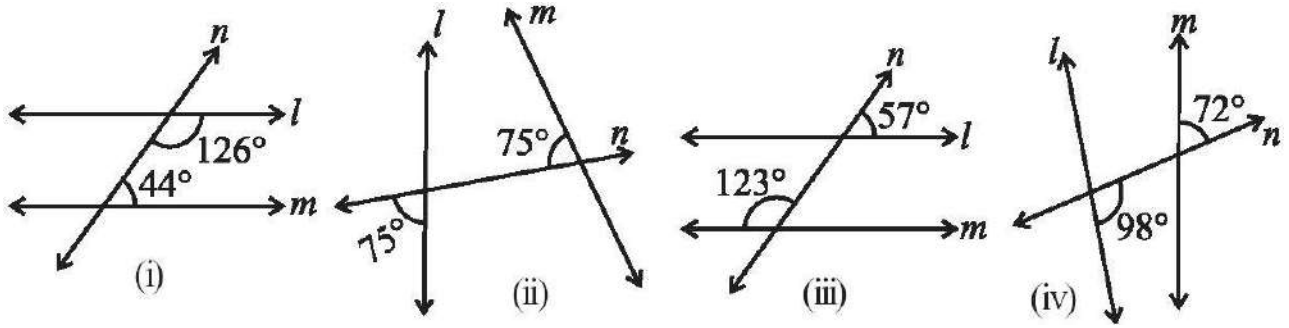
8. An angle is greater than 45º. Is its complementary angle greater than 45º or equal to 45º or less than 45º?

9. Prove that "The sum of all interior angles of a triangle is 180^0".

10. One of the angles of a triangle is 80º and the other two angles are equal. Find the measure of each of the equal angles.

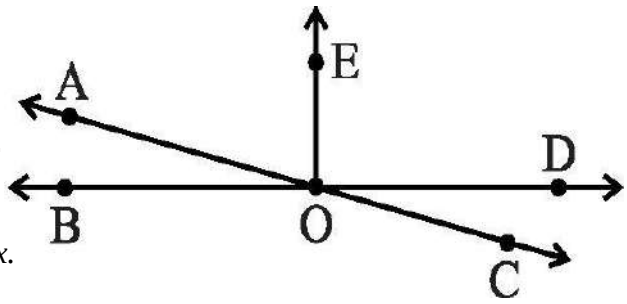
11. The three angles of a triangle are in the ratio 1:2:1. Find all the angles of the triangle.

12. In the given figures below, decide whether l is parallel to m.

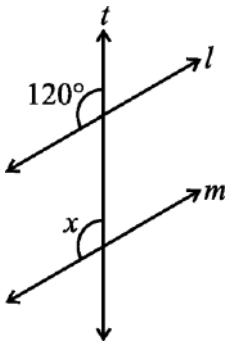


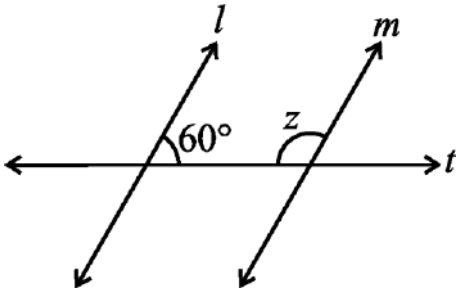
13. In the adjoining figure, name the following pairs of angles.

(i) Obtuse vertically opposite angles
(ii) Adjacent complementary angles
(iii) Equal supplementary angles
(iv) Unequal supplementary angles
(v) Adjacent angles that do not form a linear pair



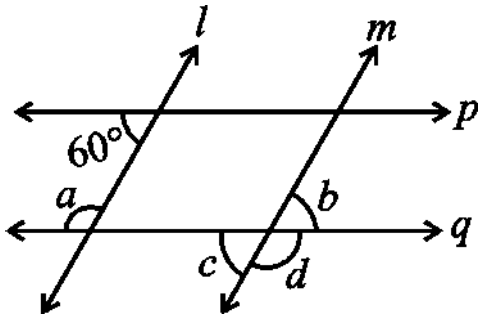
14. Lines $l \parallel m$; t is a transversal Find the value of $\angle x$.

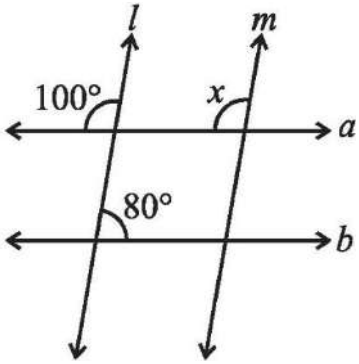




15. Lines $l \parallel m$; t is a transversal in the above right sided figure. Find the value of $\angle z$

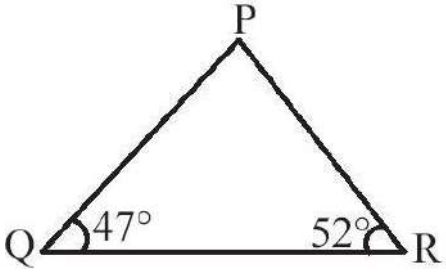
16. Lines $l \parallel m$, $p \parallel q$; Find a, b, c, d



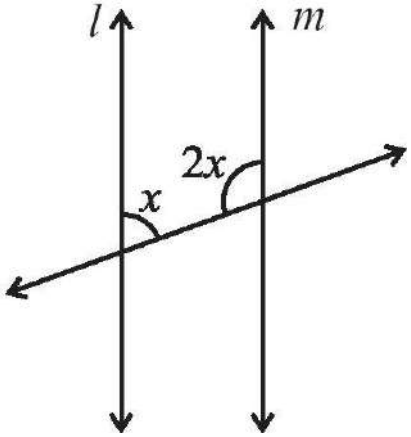


17. Find the value of x in the above right sided figure if $l \parallel m$.

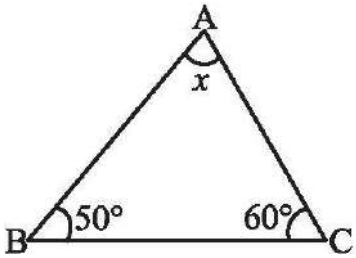
18. In the given figure, find m$\angle$P.

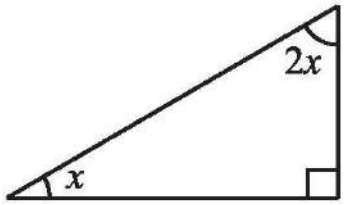


19. Find the value of x in below figure if $l \parallel m$.



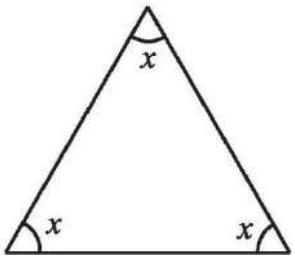
20. Find the value of the unknown x in the below figure.

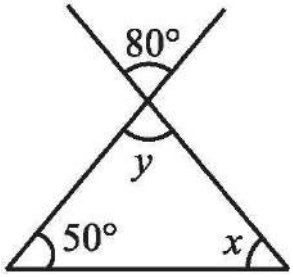




21. Find the value of the unknown x in the above right sided figure.

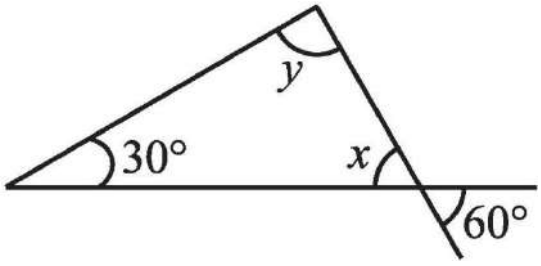
22. Find the value of the unknown x in the below figure.

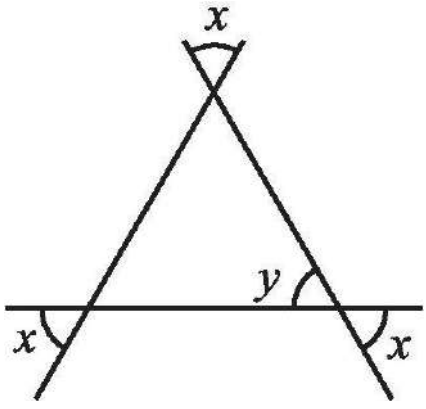




23. Find the value of x and y in the above right sided figure.

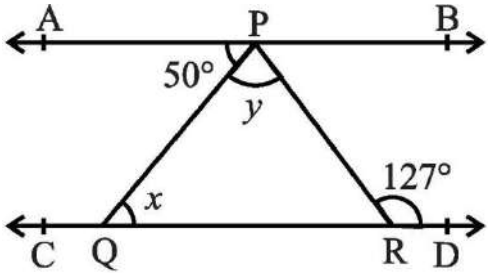
24. Find the value of x and y in the below figure.



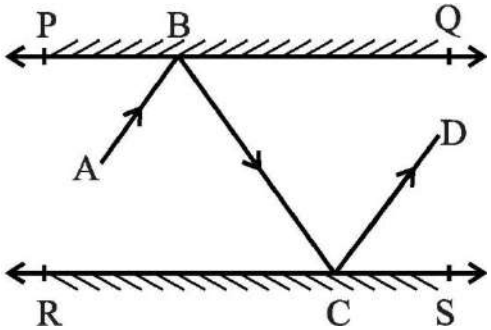


25. Find the value of x and y in the above right sided figure.

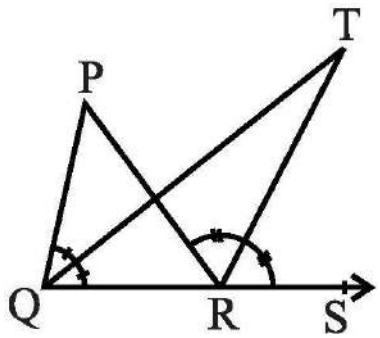
26. In the below figure, if AB || CD, ∠APQ = 50° and ∠PRD = 127°, find *x* and *y*.



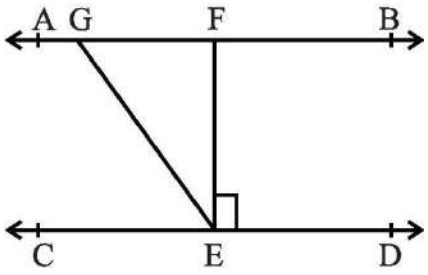
27. In the adjoining figure, PQ and RS are two mirrors placed parallel to each other. An incident ray AB strikes the mirror PQ at B, the reflected ray moves along the path BC and strikes the mirror RS at C and again reflects back along CD. Prove that AB || CD.



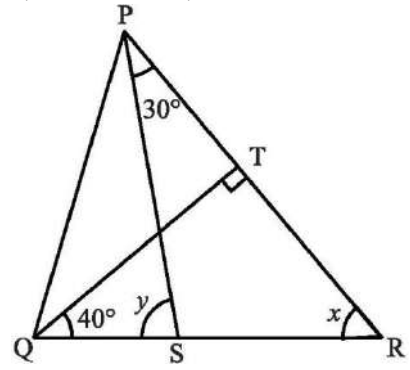
28. In the above right sided figure, the side QR of . PQR is produced to a point S. If the bisectors of ∠PQR and ∠PRS meet at point T, then prove that ∠QTR = $\frac{1}{2}$∠QPR.



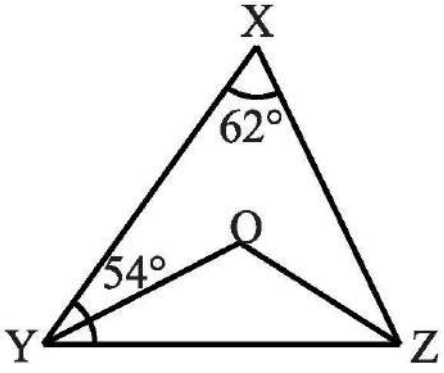
29. In below figure, if AB || CD, EF ⊥ CD and ∠GED = 126°, find ∠AGE, ∠GEF and ∠FGE.

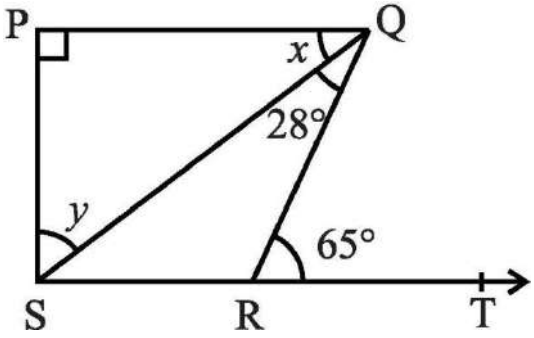


30. In the above right sided figure, if QT ⊥ PR, ∠TQR = 40° and ∠SPR = 30°, find *x* and *y*.



31. In below figure, ∠X = 62°, ∠XYZ = 54°. If YO and ZO are the bisectors of ∠XYZ and ∠XZY respectively of triangle XYZ, find ∠OZY and ∠YOZ.

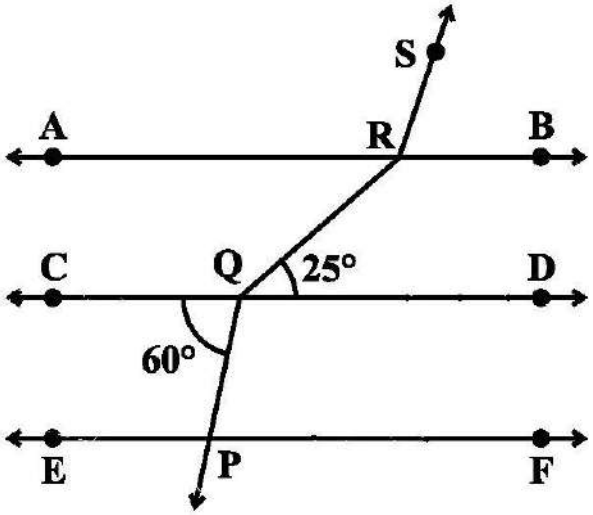


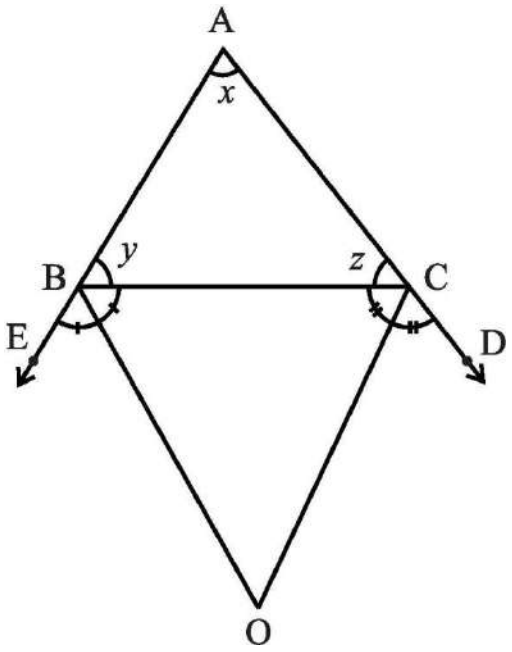


32. In the above right sided figure, if PQ ⊥ PS, PQ || SR, ∠ SQR = 28° and ∠QRT = 65°, then find the values of *x* and *y*.

33. An exterior angle of a triangle is 105° and its two interior opposite angles are equal. Find the angles

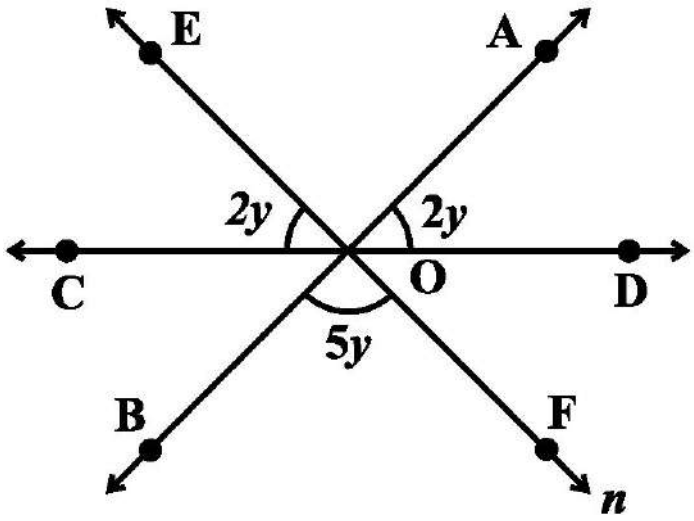
34. In the below Figure, if AB || CD || EF, PQ || RS, ∠RQD = 25° and ∠CQP = 60°, then find ∠QRS and ∠RQP

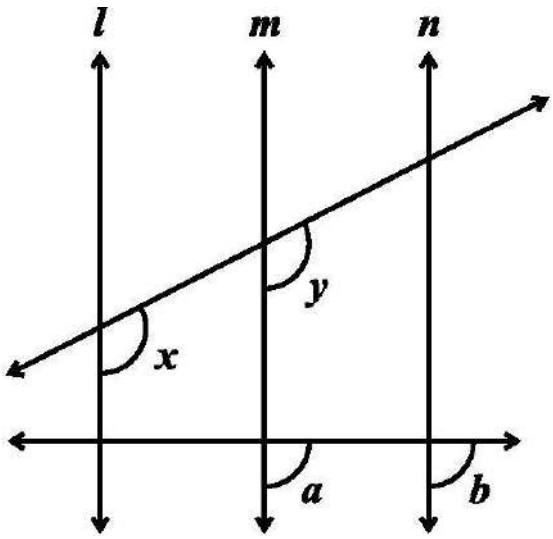




35. In the above right sided figure, the sides AB and AC of a triangle ABC are produced to points E and D respectively. If bisectors BO and CO of ∠CBE and ∠BCD respectively meet at point O, then prove that $\angle BOC = 90^0 - \frac{1}{2}\angle BAC$.

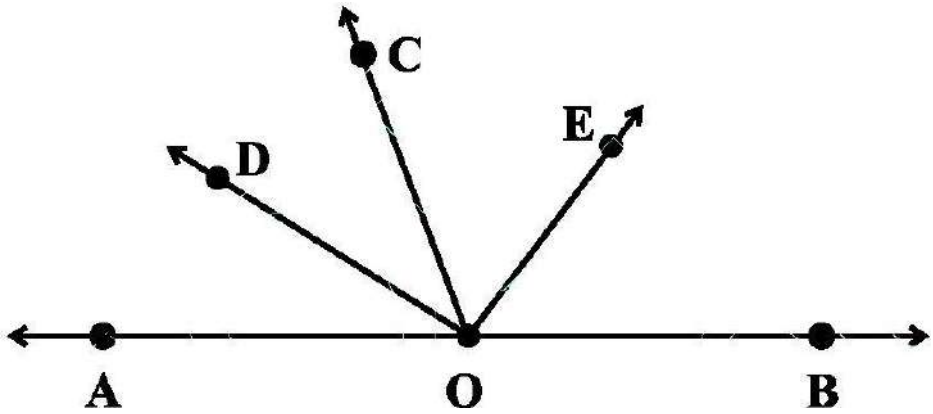
36. In the below Figure, AB, CD and EF are three lines concurrent at O. Find the value of *y*.



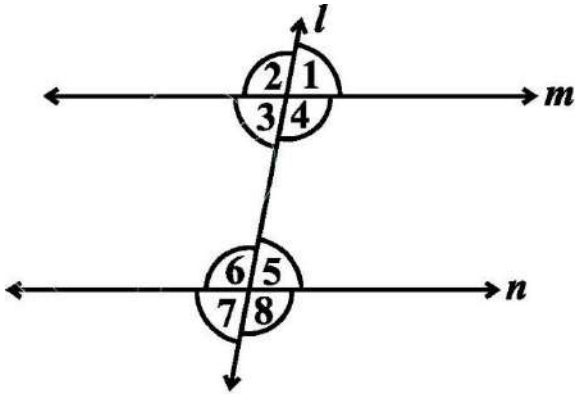


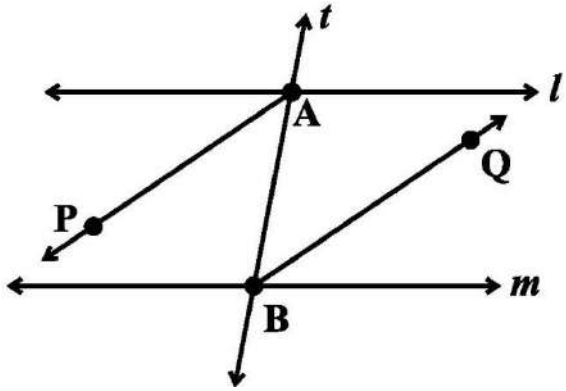
37. In the above right sided Figure, $x = y$ and $a = b$. Prove that $l \parallel n$.

38. In the below Figure, OD is the bisector of ∠AOC, OE is the bisector of ∠BOC and OD ⊥ OE. Show that the points A, O and B are collinear.



39. In the below Figure, ∠1 = 60° and ∠6 = 120°. Show that the lines *m* and *n* are parallel.

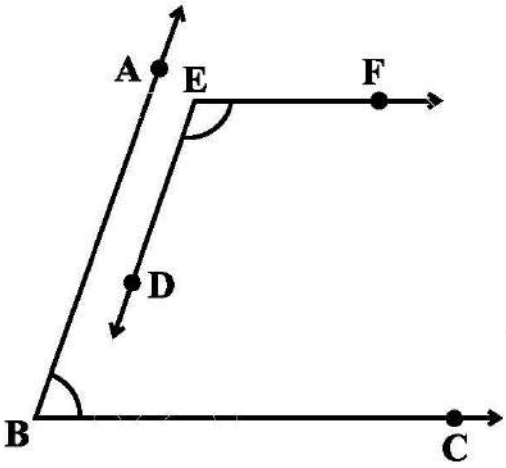


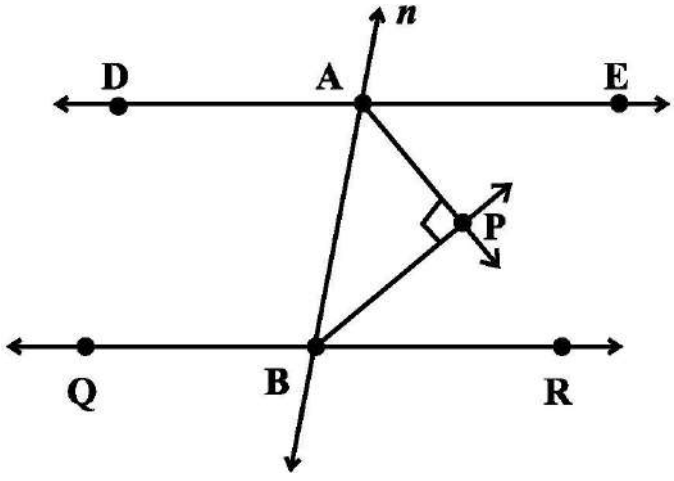


40. AP and BQ are the bisectors of the two alternate interior angles formed by the intersection of a transversal *t* with parallel lines *l* and *m* (see above right sided Figure). Show that AP || BQ.

41. If in the above right sided Figure for Q40, bisectors AP and BQ of the alternate interior angles are parallel, then show that *l* || *m*.

42. In the below Figure, BA || ED and BC || EF. Show that ∠ABC = ∠DEF





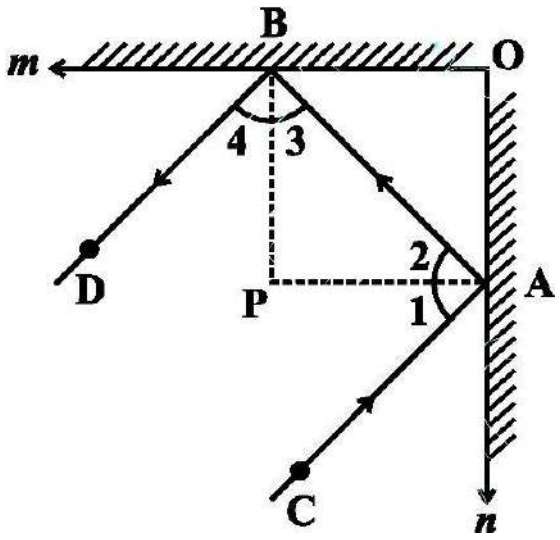
43. In the above right sided Figure, DE || QR and AP and BP are bisectors of ∠EAB and ∠RBA, respectively. Find ∠APB.

44. The angles of a triangle are in the ratio 2 : 3 : 4. Find the angles of the triangle.

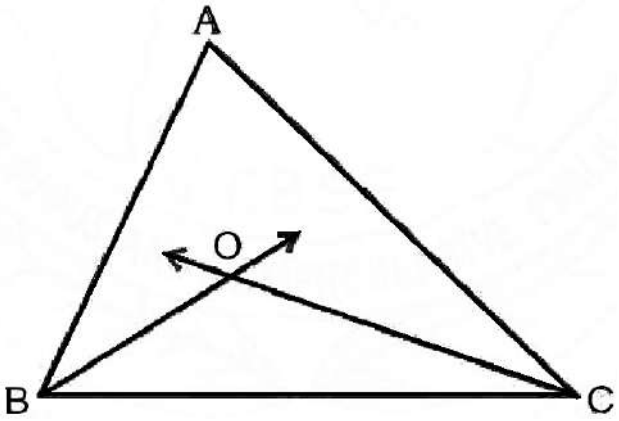
45. A triangle ABC is right angled at A. L is a point on BC such that AL ⊥ BC. Prove that ∠BAL = ∠ACB.

46. Two lines are respectively perpendicular to two parallel lines. Show that they are parallel to each other.

47. In the below Figure, *m* and *n* are two plane mirrors perpendicular to each other. Show that incident ray CA is parallel to reflected ray BD.



48. Bisectors of angles B and C of a triangle ABC intersect each other at the point O(see above right sided figure). Prove that ∠BOC = 90° + $\frac{1}{2}$∠A.



49. Bisectors of interior ∠B and exterior ∠ACD of a ΔABC intersect at the point T. Prove that ∠BTC = $\frac{1}{2}$∠BAC.

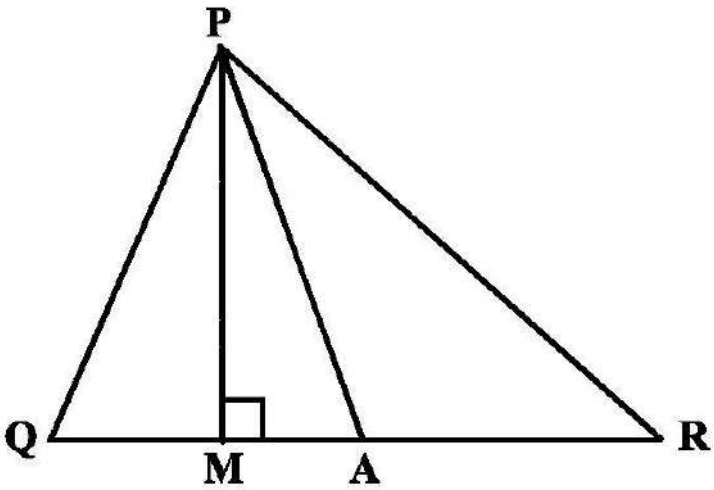
50. A transversal intersects two parallel lines. Prove that the bisectors of any pair of corresponding angles so formed are parallel.

51. Prove that through a given point, we can draw only one perpendicular to a given line.

52. Prove that two lines that are respectively perpendicular to two intersecting lines intersect each other.

53. Prove that a triangle must have at least two acute angles.

54. In the below Figure, $\angle Q > \angle R$, PA is the bisector of $\angle QPR$ and $PM \perp QR$. Prove that $\angle APM = \frac{1}{2}(\angle Q - \angle R)$.



55. If one of the angles of a triangle is 130°, then find the angle between the bisectors of the other two angles .

56. The angles of a triangle are in the ratio 5 : 3 : 7. Find the largest angle of the triangle.

57. Two adjacent angles are equal. Is it necessary that each of these angles will be a right angle? Justify your answer.

58. If one of the angles formed by two intersecting lines is a right angle, what can you say about the other three angles? Give reason for your answer.

59. Two lines *l* and *m* are perpendicular to the same line *n*. Are *l* and *m* perpendicular to each other? Give reason for your answer.

60. Angles of a triangle are in the ratio 2 : 4 : 3. find the smallest angle of the triangle.

Question Bank – Grade IX – Physics – Pre Mid Term

Very Short Answer Questions [1 mark]

1. What can you say about the motion of an object whose direction-time graph is a straight line parallel to time axis.
2. Define velocity. Give its units.
3. Give an example of a motion in which distance is covered but there is no displacement.
4. Which of the following are vector.
   a. Time b. Displacement c. Mass
5. What does the odometer of an automobile measure?
6. What is the principal behind the working of a rocket?
7. State two factors which determines the momentum of a body.
8. Which has more inertia, a cricket ball or a rubber ball?
9. What is the unit of force?
10. What is the relationship between force and mass.

Short Answer Questions [2 marks]

1. What is meant by uniform circular motion? Give a relation between radius, speed and time taken to complete one round of a body moving along a circular path.
2. A object moves 20 m in 20 sec and 30 m in 30 sec, calculate its average speed.
3. Draw velocity-time graph for the following
   a. uniform motion and
   b. Non uniform motion.
4. What is the difference between distance and displacement?
5. Define acceleration. Give its units.
6. How does a cricketer avoid getting hurt, while catching a ball?
7. Why do passengers tends to fall side wards when the bus takes a sharp turn?
8. Why does dust fly off when a carpet is hit with a stick?
9. Define law of conservation of momentum.
10. Why does a gunman get a jerk on firing a bullet?

Short Answer Questions – II type [3 marks]

1. Distinguish between speed and velocity.
2. A cheetah starts from rest and accelerates at $2m/s^2$ for 10 seconds. Calculate the final velocity [use the formula $v = u + at$].
3. A train starting from a railway station and moving with uniform acceleration attains a speed of 12 m/s in 60 seconds. Find its acceleration.
4. A racing car has a uniform acceleration of $4m/s^2$. What distance will it cover in 10 seconds after start. [use formula $s= ut + \frac{1}{2} at^2$]
5. Explain why a bicycle does not stop immediately even if we stop pedaling? Why does the bicycle stops after moving for a distance when we stop pleading?
6. What happens when a pile of carom coins is hit horizontally by a stricker?
7. Define Newton's II law of motion and momentum. Write the S.I units of momentum.
8. Define balanced forces and unbalanced forces. Write two examples for balanced and unbalanced forces.
9. State Newton's I law of motion and Inertia.

Long Answer Question [5 marks]

1. (a) State Newton's III law of motion. Give two examples to illustrate the law.
   (b) Explain why, when a fireman directs a powerful stream of water on a fire from a hose pipe, the hose pipe tends to go backwards
2. (a) State the law of conservation of momentum.
   (b) Discuss the conservation in each of the following cases.
      (i) Man jumping from the boat.
      (ii) Firing bullet from the gun
3. State Newton's three laws of motion. Give an example to illustrate Newton's II and III laws of motion.

Question bank

Grade :9 sub: chemistry

(1 mark questions)

1. What is dry ice?
2. List any two properties of particles of matter.
3. Why respiration is considered as exothermic reaction?
4. Define density?
5. What is sublimation?
6. What are the two components of a solution?
7. What is tyndall effect?
8. How can we separate the mixtures of two immiscible liquids?
9. Give two examples of colloids.
10. What are metalloids? Give an example
11. What is weathering?
12. What is green house effect?

(2 marks question)

1. Mention the applications of centrifugation.
2. What are aqueous and non-aqueous solutions? Give examples of each.
3. Why the temperature of a substance does remain constant during its melting point or boiling point?
4. A sponge can be compressed, yet it is a solid. Why?
5. How would you confirm that a colourless liquid give to you is pure water?
6. Which phenomenon occurs during the following changes?
   a. Formation of clouds
   b. Drying of wet clothes
   c. Wax melts in the sun
   d. Size of naphthalene balls decreases
7. Define boiling point and melting point.
8. What is a suspension? Give an example
9. List any two properties of colloids.
10. Give the names of elements present in a)methane b) glucose
11. Differentiate between a physical and a chemical change.
12. What are the methods of preventing soil erosion?

(3 marks question)

1. Classify the following as elements, mixtures or compounds
   Merury,blood,butter,steel, ice,air, water
2. Name the technique used to separate the following:
   a. Butter from curd
   b. Tea leaves from tea
   c. Sodium chloride from its solution in water
3. List the differences between homogeneous and heterogeneous mixture.
4. Which of the following are chemical changes?
   a. rusting of iron
   b. growth of a plant
   c. melting of butter
   d. burning of a candle
5. What happens when a beam of light is passed through a colloidal solution? Name this phenomena

6.Give reason:

a. People prefer to wear cotton clothes in summer.
b. Solids are incompressible

6. What produces more severe burns, boiling water or steam?
7. Why does our palm feel cold when we put acetone or petrol or perfume on it?
8. List any three human activities that would lead to increase in the carbondioxide content in the air?
9. Liquids generally have lower density as compared. to solids. But you must have observed that ice float son water. why?
10. List out the differences between elements and compounds with examples
11. List out the applications of chromatography
12. How are sol,solution and suspension different from each other?
13. Write differences between physical and chemical change.
14. Define the following terms: a) nitrification b) atmosphere c) biogeochemical cycle

(5 marks question)

1. Define the following terms (any two)
   a. Rigidity
   b. Compressibility
   c. Fluidity
   Compare any two states of matter on the basis of above defined properties.

2 a. define melting point b.At what temperature does ice melts

c. In the experiment to determine the melting point of ice, why does the temperature not rise till the ice melts even though the heat is continuously supplied?
d. What is this heat energy called.? Define it

3. a) carbon dioxide is a gas . write its two gaseous properties to justify it?
b) how can we liquefy gases?
c)solid carbon dioxide is also known as dry ice. Why?
d) write the full form of a)CNG b) LPG

4)a) how will you separate a mixture containing kerosene and petrol, which are miscible with each other?
b)distinguish between element and a compound

5)a) differentiate between sol, solution and suspension.
b) write the properties of metals.

(PBQs)

1 .how will you separate a mixture containing sand, common salt and ammonium chloride.

2. Write the steps involved in separating two immiscible liquids.
3. List the materials required in distillation technique,
4. What is the role of stirrer in determining melting point of ice?
5. How will you separate a mixture of salt and ammonium chloride.

Cell The Fundamental Unit of Life

Multiple Choice Questions (1 Mark)

1. Which of the following can be made into crystal?
(a) A Bacterium (b) An Amoeba
(c) A Virus (d) A Sperm
2. A cell will swell up if
(a) The concentration of water molecules in the cell is higher than the concentration of water molecules in surrounding medium
(b) The concentration of water molecules in surrounding medium is higher than water molecules concentration in the cell
(c) The concentration of water molecules is same in the cell and in the surrounding medium
(d) Concentration of water molecules does not matter
3. Chromosomes are made up of
(a) DNA (b) protein
(c) DNA and protein (d) RNA
4. Which of these options are not a function of Ribosomes?
(i) It helps in manufacture of protein molecules
(ii) It helps in manufacture of enzymes
(iii) It helps in manufacture of hormones
(iv) It helps in manufacture of starch molecules
(a) (i) and (ii) (b) (ii) and (iii)
(c) (iii) and (iv) (d) (iv) and (i)
5. Which of these is not related to endoplasmic reticulum?
(a) It behaves as transport channel for proteins between nucleus & cytoplasm
(b) It transports materials between various regions in cytoplasm
(c) It can be the site of energy generation
(d) It can be the site for some biochemical activities of the cell
6. Following are a few definitions of osmosis
Read carefully and select the correct definition
(a) Movement of water molecules from a region of higher concentration to
a region of lower concentration through a semipermeable membrane
(b) Movement of solvent molecules from its higher concentration to lower concentration
(c) Movement of solvent molecules from higher concentration to lower concentration of solution through a permeable membrane
(d) Movement of solute molecules from lower concentration to higher concentration of solution through a semipermeable membrane
7. Plasmolysis in a plant cell is defined as
(a) break down (lysis) of plasma membrane in hypotonic medium
(b) shrinkage of cytoplasm in hypertonic medium
(c) shrinkage of nucleoplasm
(d) none of them
8. Which of the following are covered by a single membrane?
(a) Mitochondria (b) Vacuole
(c) Lysosome (d) Plastid
9. Find out the false sentences
(a) Golgi apparatus is involved with the formation of lysosomes
(b) Nucleus, mitochondria and plastid have DNA; hence they are able to make their own structural proteins
(c) Mitochondria is said to be the power house of the cell as ATP is generated in them.
(d) Cytoplasm is called as protoplasm
10. Find out the correct sentence
(a) Enzymes packed in Lysosomes are made through RER (rough endoplasmic reticulum)
(b) Rough endoplasmic reticulum and smooth endoplasmic reticulum produce lipid and protein respectively
(c) Endoplasmic reticulum is related with the destruction of plasma membrane
(d) Nucleoid is present inside the nucleoplasm of eukaryotic nucleus

11. Which cell organelle plays a crucial role in detoxifying many poisons and drugs in a cell?
(a) Golgi apparatus (b) Lysosomes
(c) Smooth endoplasmic reticulum (d) Vacuoles
12. The proteins and lipids, essential for building the cell membrane, are manufactured by
(a) rough endoplasmic reticulum (b) golgi apparatus
(c) plasma membrane (d) mitochondria
13. The undefined nuclear region of prokaryotes are also known as
(a) nucleus (b) nucleolus
(c) nucleic acid (d) nucleoid
14. The cell organelle involved in forming complex sugars from simple sugars are
(a) endoplasmic reticulum (b) ribosomes
(c) plastids (d) golgi apparatus
15. Which out of the following is not a function of vacuole?
(a) Storage (b) Providing turgidity and rigidity to the cell
(c) Waste excretion (d) Locomotion
16. Amoeba acquires its food through a process, termed
(a) exocytosis (b) endocytosis
(c) plasmolysis (d) exocytosis and endocytosis both
17. Cell wall of which one of these is not made up of cellulose?
(a) Bacteria (b) *Hydrilla*
(c) Mango tree (d) Cactus
18. Silver nitrate solution is used to study
(a) endoplasmic reticulum (b) golgi apparatus
(c) nucleus (d) mitochondria
19. Organelle other than nucleus, containing DNA is
(a) endoplasmic reticulum (b) golgi apparatus
(c) mitochondria (d) lysosome
20. Kitchen of the cell is
(a) mitochondria (b) endoplasmic reticulum
(c) chloroplast (d) golgi apparatus
21. Lipid molecules in the cell are sythesized by
(a) smooth endoplasmic reticulum b) rough endoplasmic reticulum
(c) golgi apparatus (d) plastids
22. Cell arises from pre-existing cell was stated by
(a) Haeckel (b) Virchow
(c) Hooke (d) Schleiden
23. Cell theory was given by
(a) Schleiden and Schwann (b) Virchow
(c) Hooke (d) Haeckel
24. The only cell organelle seen in prokaryotic cell is
(a) mitochondria (b) ribosomes
(c) plastids (d) lysosomes
25. Organelle without a cell membrane is
(a) ribosome (b) golgi apparatus
(c) chloroplast (d) nucleus
26. 1 □m is
(a) 10–6 m (b) 10–9 m (c) 10–10 m (d) 10–3 m
27. Lysosome arises from
(a) endoplasmic reticulum (b) golgi apparatus
(c) nucleus (d) mitochondria
28. Living cells were discovered by
(a) Robert Hooke (b) Purkinje
(c) Leeuwenhoek (d) Robert Brown
29. Select the odd one out
(a) The movement of water across a semi permeable membrane is affected by the amount of substances dissolved in it.
(b) Membranes are made of organic molecules like proteins and lipids
(c) Molecules soluble in organic solvents can easily pass through the membrane.
(d) Plasma membranes contain chitin sugar in plants

Short Answer Questions (2 Marks)

30. Why are lysosomes known as 'suicide-bags' of a cell?
31. Do you agree that "A cell is a building unit of an organism". If yes, explain why?
32. Why does the skin of your finger shrink when you wash clothes for a long time?
33. Why is endocytosis found in animals only?
34. A person takes concentrated solution of salt, after sometime, he starts vomiting. What is the phenomenon responsible for such situation? Explain.
35. Name any cell organelle which is non membranous.
36. We eat food composed of all the nutrients like carbohydrates, proteins, fats, vitamins, minerals and water. After digestion, these are absorbed in the form of glucose, aminoacids, fatty acids, glycerol etc.
What mechanisms are involved in absorption of digested food and water?
37. If you are provided with some vegetables to cook. You generally add salt into the vegetables during cooking process. After adding salt, vegetables release water. What mechanism is responsible for this?
38. If cells of onion peel and RBC are separately kept in hypotonic solution, what among the following will take place? Explain the reason for your answer.
(a) Both the cells will swell.
(b) RBC will burst easily while cells of onion peel will resist the bursting to some extent.
(c) a and b both are correct.
(d) RBC and onion peel cells will behave similarly.
39. Bacteria do not have chloroplast but some bacteria are photoautorophic in nature and perform photosynthesis. Which part of bacterial cell performs this?
40. Match the following A and B

(A)	(B)
(a) Smooth endoplasmic reticulum	(i) *Amoeba*
(b) Lysosome	(ii) Nucleus
(c) Nucleoid	(iii) Bacteria
(d) Food vacuoles	(iv) Detoxification
(e) Chromatin material	(v) Suicidal bag

41. Write the name of different plant parts in which chromoplast, chloroplast and leucoplast are present.
42. Name the organelles which show the analogy written as under
(a) Transporting channels of the cell——
(b) Power house of the cell——
(c) Packaging and dispatching unit of the cell——
(d) Digestive bag of the cell——
(e) Storage sacs of the cell——
(f) Kitchen of the cell——
(g) Control room of the cell——
43. How is a bacterial cell different from an onion peel cell?
44. How do substances like carbon dioxide (CO_2) and water (H_2O) move in and out of the cell?
45. How does amoeba obtain its food?
46. Name the two organelles in a plant cell that contain their own genetic material and ribosomes.
47. Why are lysosomes also known as "scavengers of the cells"?
48. Which cell organelle controls most of the activities of the cell?
49. Which kind of plastid is more common in
(a) roots of the plant (b) leaves of the plant
(c) flowers and fruits
50. Why do plant cells possess large sized vacuole?
51. How are chromatin, chromatid and chromosomes related to each other?
52. What are the consequences of the following conditions?
(a) A cell containing higher water concentration than the surrounding medium
(b) A cell having low water concentration than the surrounding medium.
(c) A cell having equal water concentration to its surrounding medium.

Long Answer Questions

53. Draw a plant cell and label the parts which
(a) determines the function and development of the cell
(b) packages materials coming from the endoplasmic reticulum
(c) provides resistance to microbes to withstand hypotonic external media without bursting
(d) is site for many biochemical reactions necessary to sustain life.
(e) is a fluid contained inside the nucleus
54. Illustrate only a plant cell as seen under electron microscope. How is it different from animal cell?
55. Draw a neat labelled diagram of an animal cell.
56. Draw a well labelled diagram of an eukaryotic nucleus. How is it different from nucleoid?
57. Differentiate between rough and smooth endoplasmic reticulum. How is endoplasmic reticulum important for membrane biogenesis?
58. In brief state what happens when
(a) dry apricots are left for sometime in pure water and later transferred to sugar solution?
(b) a Red Blood Cell is kept in concentrated saline solution?
(c) the Plasma-membrane of a cell breaks down?
(d) rheo leaves are boiled in water first and then a drop of sugar syrup is put on it?
(e) golgi apparatus is removed from the cell?
59. Draw a neat diagram of plant cell and label any three parts which differentiate it from animal cell.

TISSUES

Multiple Choice Questions

1. Which of the following tissues has dead cells?
(a) Parenchyma (b) Sclerenchyma
(c) Collenchyma (d) Epithelial tissue

2. Find out incorrect sentence
(a) Parenchymatous tissues have intercellular spaces
(b) Collenchymatous tissues are irregularly thickened at corners
(c) Apical and intercalary meristems are permanent tissues
(d) Meristematic tissues, in its early stage, lack vacuoles

3. Girth of stem increases due to
(a) apical meristem (b) lateral meristem
(c) intercalary meristem (d) vertical meristem

4. Which cell does not have perforated cell wall?
(a) Tracheids (b) Companion cells
(c) Sieve tubes (d) Vessels

5. Intestine absorb the digested food materials. What type of epithelial cells is responsible for that?
(a) Stratified squamous epithelium (b) Columnar epithelium
(c) Spindle fibres (d) Cuboidal epithelium

6. A person met with an accident in which two long bones of hand were dislocated. Which among the following may be the possible reason?
(a) Tendon break (b) Break of skeletal muscle
(c) Ligament break (d) Areolar tissue break

7. While doing work and running, you move your organs like hands, legs etc. Which among the following is correct?
(a) Smooth muscles contract and pull the ligament to move the bones
(b) Smooth muscles contract and pull the tendons to move the bones
(c) Skeletal muscles contract and pull the ligament to move the bones
(d) Skeletal muscles contract and pull the tendon to move the bones

8. Which muscles act involuntarily?
(i) Striated muscles (ii) Smooth muscles
(iii) Cardiac muscles (iv) Skeletal muscles
(a) (i) and (ii) (b) (ii) and (iii)
(c) (iii) and (iv) (d) (i) and (iv)

9. Meristematic tissues in plants are
(a) localised and permanent (b) not limited to certain regions
(c) localised and dividing cells (d) growing in volume

10. Which is *not* a function of epidermis?
(a) Protection from adverse condition (b) Gaseous exchange
(c) Conduction of water (d) Transpiration

11. Select the incorrect sentence
(a) Blood has matrix containing proteins, salts and hormones
(b) Two bones are connected with ligament
(c) Tendons are non-fibrous tissue and fragile
(d) Cartilage is a form of connective tissue

12. Cartilage is not found in
(a) nose (b) ear (c) kidney (d) larynx

13. Fats are stored in human body as
(a) cuboidal epithelium (b) adipose tissue
(c) bones (d) cartilage

14. Bone matrix is rich in
(a) fluoride and calcium (b) calcium and phosphorus
(c) calcium and potassium (d) phosphorus and potassium

15. Contractile proteins are found in
(a) bones (b) blood (c) muscles (d) cartilage

16. Voluntary muscles are found in
(a) alimentary canal (b) limbs
(c) iris of the eye (d) bronchi of lungs

17. Nervous tissue is not found in
(a) brain (b) spinal cord (c) tendons (d) nerves

18. Nerve cell does not contain

(a) axon (b) nerve endings (c) tendons (d) dendrites

19. Which of the following helps in repair of tissue and fills up the space inside the organ?

(a) Tendon (b) Adipose tissue (c) Areolar (d) Cartilage

20. The muscular tissue which function throughout the life continuously without fatigue is

(a) skeletal muscle (b) cardiac muscle

(c) smooth muscle (d) voluntary muscle

21. Which of the following cells is found in the cartilaginous tissue of the body?

(a) Mast cells (b) Basophils

(c) Osteocytes (d) Chondrocytes

22. The dead element present in the phloem is

(a) companion cells (b) phloem fibres

(c) phloem parenchyma (d) sieve tubes

23. Which of the following does not lose their nucleus at maturity?

(a) Companion cells (b) Red blood cells

(c) Vessel (d) Sieve tube cells

24. In desert plants, rate of water loss gets reduced due to the presence of

(a) cuticle (b) stomata (c) lignin (d) suberin

25. A long tree has several branches. The tissue that helps in the side ways conduction of water in the branches is

(a) collenchyma (b) xylem parenchyma

(c) parenchyma (d) xylem vessels

26. If the tip of sugarcane plant is removed from the field, even then it keeps on growing in length. It is due to the presence of

(a) cambium (b) apical meristem

(c) lateral meristem (d) intercalary meristem

27. A nail is inserted in the trunk of a tree at a height of 1 metre from the ground level. After 3 years the nail will

(a) move downwards (b) move upwards

(c) remain at the same position (d) move sideways

28. Parenchyma cells are

(a) relatively unspecified and thin walled (c) lignified

(b) thick walled and specialised (d) none of these

29. Flexibility in plants is due to

(a) collenchyma (b) sclerenchyma

(c) parenchyma (d) chlorenchyma

30. Cork cells are made impervious to water and gases by the presence of

(a) cellulose (b) lipids (c) suberin (d) lignin

31. Survival of plants in terrestrial environment has been made possible by the presence of

(a) intercalary meristem (b) conducting tissue

(c) apical meristem (d) parenchymatous tissue

32. Choose the wrong statement

(a) The nature of matrix differs according to the function of the tissue

(b) Fats are stored below the skin and in between the internal organs

(c) Epithelial tissues have intercellular spaces between them

(d) Cells of striated muscles are multinucleate and unbranched

33. The water conducting tissue generally present in gymnosperm is

(a) vessels (b) sieve tube

(c) tracheids (d) xylem fibres

Short Answer Questions

34. Animals of colder regions and fishes of cold water have thicker layer of subcutaneous fat. Describe why?

35. Match the column (A) with the column (B)

(A)	(B)
(a) Fluid connective tissue	(i) Subcutaneous layer
(b) Filling of space inside the organs	(ii) Cartilage
(c) Striated muscle	(iii) Skeletal muscle
(d) Adipose tissue	(iv) Areolar tissue
(e) Surface of joints	(v) Blood
(f) Stratified squamous epithelium	(vi) Skin

36. Match the column (A) with the column (B)

(A)	(B)
(a) Parenchyma	(i) Thin walled, packing cells
(b) Photosynthesis	(ii) Carbon fixation
(c) Aerenchyma	(iii) Localized thickenings
(d) Collenchyma	(iv) Buoyancy
(e) Permanent tissue	(v) Sclerenchyma

37. If a potted plant is covered with a glass jar, water vapours appear on the wall of glass jar. Explain why?

38. Name the different components of xylem and draw a living component?

39. Draw and identify different elements of phloem.

40. Write true (T) or false (F)

(a) Epithelial tissue is protective tissue in animal body.

(b) The lining of blood vessels, lung alveoli and kidney tubules are all made up of epithelial tissue.

(c) Epithelial cells have a lot of intercellular spaces.

(d) Epithelial layer is permeable layer.

(e) Epithelial layer does not allow regulation of materials between body and external environment.

41. Differentiate between voluntary and involuntary muscles. Give one example of each type.

42. Differentiate the following activities on the basis of voluntary (V) or involuntary (I V) muscles.

(a) Jumping of frog (b) Pumping of the heart

(c) Writing with hand (d) Movement of chocolate in intestine

43. Fill in the blanks

(a) Lining of blood vessels is made up of———.

(b) Lining of small intestine is made up of ———.

(c) Lining of kidney tubules is made up of———.

(d) Epithelial cells with cilia are found in———of our body.

44. Water hyacinth float on water surface. Explain.

45. Which structure protects the plant body against the invasion of parasites?

46. Fill in the blanks

(a) Cork cells possesses———on their walls that makes it impervious to
gases and water.

(b) ——— have tubular cells with perforated walls and are living in nature.

(c) Bone possesses a hard matrix composed of———and ———.

47. Why is epidermis important for the plants?

48. Fill in the blanks

(a) ———are forms of complex tissue.

(b) ———have guard cells.

(c) Cells of cork contain a chemical called———

(d) Husk of coconut is made of ———tissue.

(e) ———gives flexibility in plants.

(f) ———and———are both conducting tissues.

(g) Xylem transports———and———from soil.

(h) Phloem transport———from———to other parts of the plant.

Long Answer Questions

49. Differentiate between sclerenchyma and parenchyma tissues. Draw well labelled diagram.

50. Describe the structure and function of different types of epithelial tissues. Draw diagram of each type of epithelial tissue.

51. Draw well labelled diagrams of various types of muscles found in human body.

52. Give reasons for

(a) Meristematic cells have a prominent nucleus and dense cytoplasm but they lack vacuole.

(b) Intercellular spaces are absent in sclerenchymatous tissues.

(c) We get a crunchy and granular feeling, when we chew pear fruit.

(d) Branches of a tree move and bend freely in high wind velocity.

(e) It is difficult to pull out the husk of a coconut tree.

53. List the characteristics of cork. How are they formed? Mention their role.

54. Why are xylem and phloem called complex tissues? How are they different from one other?

55. (a) Differentiate between meristematic and permanent tissues in plants

(b) Define the process of differentiation

(c) Name any two simple and two complex permanent tissues in plants.

IMPROVEMENT IN FOOD RESOURCES

Multiple Choice Questions

1. Which one is an oil yielding plant among the following?

(a) Lentil (b) Sunflower (c) Cauliflower (d) Hibiscus

2. Which one is not a source of carbohydrate?

(a) Rice (b) Millets (c) Sorghum (d) Gram

3. Find out the wrong statement from the following

(a) White revolution is meant for increase in milk production

(b) Blue revolution is meant for increase in fish production

(c) Increasing food production without compromising with environmental quality is called as sustainable agriculture

(d) None of the above

4. To solve the food problem of the country, which among the following is necessary?

(a) Increased production and storage of food grains

(b) Easy access of people to the food grain

(c) People should have money to purchase the grains

(d) All of the above

5. Find out the correct sentence

(i) Hybridisation means crossing between genetically dissimilar plants

(ii) Cross between two varieties is called as inter specific hybridisation

(iii) Introducing genes of desired character into a plant gives genetically modified crop

(iv) Cross between plants of two species is called as inter varietal hybridisation

(a) (i) and (iii) (b) (ii) and (iv) (c) (ii) and (iii) (d) (iii) and (iv)

6. Weeds affect the crop plants by

(a) killing of plants in field before they grow (b) dominating the plants to grow

(c) competing for various resources of crops (plants) causing low availability of nutrients

(d) all of the above.

7. Which one of the following species of honey bee is an Italian species?

(a) *Apis dorsata* (b) *Apis florae* (c) *Apis cerana indica* (d) *Apis mellifera*

8. Find out the correct sentence about manure

(i) Manure contains large quantities of organic matter and small quantities of nutrients.

(ii) It increases the water holding capacity of sandy soil.
(iii) It helps in draining out of excess of water from clayey soil.
(iv) Its excessive use pollutes environment because it is made of animal excretory waste.
(a) (i) and (iii) (b) (i) and (ii) (c) (ii) and (iii) (d) (iii) and (iv)

9. Cattle husbandry is done for the following purposes
(i) Milk Production (ii) Agricultural work (iii) Meat production (iv) Egg production
(a) (i), (ii) and (iii) (b) (ii), (iii) and (iv) (c) (iii) and (iv) (d) (i) and (iv)

10. Which of the following are Indian cattle?
(i) *Bos indicus* (ii) *Bos domestica* (iii) *Bos bubalis* (iv) *Bos vulgaris*
(a) (i) and (iii) (b) (i) and (ii) (c) (ii) and (iii) (d) (iii) and (iv)

11. Which of the following are exotic breeds?
(i) Brawn (ii) Jersey (iii) Brown Swiss (iv) Jersey Swiss
(a) (i) and (iii) (b) (ii) and (iii) (c) (i) and (iv) (d) (ii) and (iv)

12. Poultry farming is undertaken to raise following
(i) Egg production (ii) Feather production
(iii) Chicken meat (iv) Milk production
a) (i) and (iii) (b) (i) and (ii) (c) (ii) and (iii) (d) (iii) and (iv)

13. Poultry fowl are susceptible to the following pathogens
(a) Viruses (b) Bacteria (c) Fungi (d) All of the above

14. Which one of the following fishes is a surface feeder?
(a) Rohus (b) Mrigals (c) Common carps (d) Catlas

15. Animal husbandry is the scientific management of
(i) animal breeding (ii) culture of animals
(iii) animal livestock (iv) rearing of animals
(a) (i), (ii) & (iii) (b) (ii), (iii) & (iv) (c) (i), (ii) & (iv) (d) (i), (iii) & (iv)

16. Which one of the following nutrients is not available in fertilizers?
(a) Nitrogen (b) Phosphorus (c) Iron (d) Potassium

17. Preventive and control measures adopted for the storage of grains include
(a) strict cleaning (b) proper disjoining (c) fumigation (d) all of the above

Short Answer Questions

18. Match the column A with the column B

(A)	(B)
(a) Catla	(i) Bottom feeders
(b) Rohu	(ii) Surface feeders
(c) Mrigal	(iii) Middle-zone feeders
(d) Fish farming	(iv) Culture fishery

19. Fill in the blanks
(a) Pigeon pea is a good source of _____.
(b) Berseem is an important _____ crop.
(c) The crops which are grown in rainy season are called _____ crops.
(d) _____ are rich in vitamins.
(f) _____ crop grows in winter season.

20. What is a GM crop? Name any one such crop which is grown in India.

21. List out some useful traits in improved crop?

22. Why is organic matter important for crop production?

23. Why is excess use of fertilizers detrimental for environment?

24. Give one word for the following
(a) Farming without the use of chemicals as fertilizers, herbicides and pesticides is known as _____.
(b) Growing of wheat and groundnut on the same field is called as _____.
(c) Planting soyabean and maize in alternate rows in the same field is called as_____.
(d) Growing different crops on a piece of land in pre-planned succession is known as _____.
(e) *Xanthium* and *Parthenium* are commonly known as _____.
(f) Causal organism of any disease is called as _____.

25. Match the following A and B

(A)	(B)
(a) Cattle used for tilling and carting	(i) Milk producing female
(b) Indian breed of chicken	(ii) Broiler
(c) Sahiwal, Red Sindhi	(iii) Drought animals
(d) Milch	(iv) Local breed of cattle
(e) Chicken better fed for obtaining Meat	(v) Aseel

26. If there is low rainfall in a village throughout the year, what measures will you suggest to the farmers for better cropping?

27. Group the following and tabulate them as energy yielding, protein yielding, oil yielding and fodder crop.

Wheat, rice, berseem, maize, gram, oat, pigeon gram, sudan grass, lentil, soyabean, groundnut, castor and mustard.

28. Define the term hybridization and photoperiod.

29. Fill in the blanks

(a) Photoperiod affect the _____.

(b) Kharif crops are cultivated from _____to _____.

(c) Rabi crops are cultivated from_____ to _____.

(d) Paddy, maize, green gram and black gram are _____ crops.

(e) Wheat, gram, pea, mustard are _____ crops.

30. Cultivation practices and crop yield are related to environmental condition. Explain.

31. Fill in the blanks

(a) A total of _____ nutrients are essential to plants.

(b) _____ and _____ are supplied by air to plants.

(c) _____ is supplied by water to plants.

(d) Soil supply_____nutrients to plants.

(e) _____nutrients are required in large quantity and called as_____.

(f) _____ nutrients are needed in small quantity for plants and are called _____.

32. Differentiate between compost and vermicompost?

33. Arrange these statements in correct sequence of preparation of green manure.

(a) Green plants are decomposed in soil.

(b) Green plants are cultivated for preparing manure or crop plant parts are used.

(c) Plants are ploughed and mixed into the soil.

(d) After decomposition it becomes green manure.

34. An Italian bee variety *A. mellifera* has been introduced in India for honey production. Write about its merits over other varieties.

35. In agricultural practices, higher input gives higher yield. Discuss how?

Long Answer Questions

36. Discuss the role of hybridisation in crop improvement.

37. Define (i) Vermicompost (ii) Green manure (iii) Bio fertilizer

38. Discuss various methods for weed control.

39. Differentiate between the following

(i) Capture fishery and Culture fishery (ii) Mixed cropping and Inter cropping

(iii) Bee keeping and Poultry farming

40. Give the merits and demerits of fish culture?

41. What do you understand by composite fish culture?

42. Why bee keeping should be done in good pasturage?

43. Write the modes by which insects affect the crop yield.

44. Discuss why pesticides are used in very accurate concentration and in very appropriate manner?

45. Name two types of animal feed and write their functions.

46. What would happen if poultry birds are larger in size and have no summer adaptation capacity? In order to get small sized poultry birds, having summer adaptability, what method will be employed?

47. Suggest some preventive measures for the diseases of poultry birds.

NOTE:

This is question bank is very exhaustive. This is for the purpose of revision and is based on both Low Order Thinking Skills and High Order Thinking Skills. This question bank is to help them revise till the final exam and therefore there is no time limit for completion of this exercise. However the students should atleast attempt Multiple Choice and very short answer type questions from each chapter during holidays for self-evaluation.

GRADE-9 Social Science

VERY SHORT QUESTIONS:

Chapter-2

1. Which form of government allows people to choose their Rulers?
2. Which form of government is considered Non-Democratic?
3. Which is the most common form of Democracy in Today's World?
4. When does a citizen have an equal role in decision making?
5. Why is quality decisions a possibility in a democracy?
6. Before contesting elections in China whose approval does a candidate need to have?

Chapter-3

7. Why was Nelson Mandela sentenced to life imprisonment?
8. What is Apartheid?
9. What was the constituent assembly?
10. What is meant by the term Preamble?
11. Why is India called a Republic?
12. What was the main contribution of Sardar Vallabh Bhai Patel just after Independence?
13. What do we call a state where Head of the state is an elected and not a Hereditary person?

Chapter-4

14. What is meant by Booth capture?
15. Elections are considered essential for any representative Democracy" .Why?
16. Define Elections?
17. What is a constituency?
18. How many states have more than 40 Loksabha constituencies in India?
19. What do you understand by the term By-election?
20. What is reserved constituency?

Short Questions:

Chapter-2

1. "Election in China do not represent people's verdict." Explain
2. Explain the major features of Democracy?
3. What is the significance of rule of law and respect for rights in a democratic country?
4. In what three ways does the democracy in a country enhance the dignity of an individual?
5. Mention two arguments for democracy. Which characteristics make democratic government so popular?
6. How did General Parvez Musharraf become the President of Pakistan?

Chapter-3

7. "The Apartheid system was particularly oppressive for the blacks" Justify by giving three reasons?
8. "India's constitution was also drawn up under very difficult circumstances". Elobrate this statement with the help of any four circumstances during it was made?
9. "The working of the constituent assembly has given sanctity to the constitution". Explain.
10. "Indian constitution is both rigid and flexible" Explain.
11. India is a "Sovereign, Socialist, Secular, Democratic Republic" Justify.
12. Why do we need constitution and what does constitution do? Explain.
13. Describe the composition of the constituent assembly? How much time it took to frame the Indian constitution?

Chapter-4

14. What kind of choices does a voter make in elections? Describe
15. Why is it not possible in modern democracies to establish rule of the people without any elections? Explain.
16. What makes Elections in India democratic?
17. Describe the procedure of voting on the polling day?
18. How and by whom is the voters list prepared?
19. Distinguish between General Elections and By-elections.
20. Describe the process of counting of votes in India?

Long Questions:

Chapter-2

1. Why do we prefer democracy better than any other form of Government?
2. Write some common features of the Non-democratic countries.
3. Explain the major features of Democratic Government.

Chapter-3

4. What is meant by Apartheid? Examine the major features.
5. What is constitution? What is its importance?
6. Why should we accept the constitution made by the constituent assembly more than sixty years?
7. Explain the major factors which contributed to the making up our constitution?

Chapter-4:

8. Explain the Election procedure?
9. Describe any five demerits of Electoral competition.
10. Explain the role of the election commission in free and fair elections.
11. "Election commission of India is very powerful" Explain.

PROJECT WORK (Individual project): Write down the Preamble of India and any two Neighboring countries and its Norms and working.(20marks)

1 MARK QUESTIONS

1. In which region are most of the fresh water lakes found in India?
2. Which island group of India lies to its south-east?
3. What do you mean by latitudes & Longitudes?
4. Name two activities included in the tertiary sector?
5. What did the red cap worn by sans-culottes in France symbolize?
6. Name any two neighbouring countries that share boundaries with India.
7. Name any one peninsular tributary of the Ganga.
8. What is meant by Yield?
9. Which revolution gave the idea of liberty, equality and fraternity?
10. Name the Indian state that shares its boundary with Pakistan.
11. Name the courses of the river in which meanders are formed.
12. For how many years did Pinochet rule Chile?
13. Explain the term Indian Standard Time?
14. What do you call the finance raised to operate a business?
15. Name a famous women's club of France.
16. Between which latitudes does the mainland of India extend?
17. Which rivers are known as Perennial Rivers?
18. Which country was the first to grant universal suffrage?
19. What are non-market activities?
20. On what charges was Louis XVI guillotined?
21. Name two southern neighbours of India.
22. In which group of Hemisphere is India located?
23. Name an item that is not fixed capital.

24. What was the role of philosophers and thinkers in the French Revolution?
25. What was the Second International?
26. In which reference does India lie with reference to the Equator?
27. What are Tectonic Plates?
28. What is a Communist State? Give an example.
29. Which sector is the most labour absorbing sector of the economy?
30. Which Longitude for taken as Indian Standard Time?
31. Under which slogan did Hitler integrate Austria and Germany in 1938?
32. In which state is Wular Lake located?
33. What is the East-West extent of India?
34. Employing children below the children of 14 in bangle making is a violation of which fundamental right?
35. In which sector is disguised unemployment commonly found?
36. Mention any two Nazi propaganda techniques.
37. What does IMF stand for?
38. What are the two main activities of production in Palampur?
39. Who was Goebbels?
40. Who was the leader of solidarity movement in Poland?
41. What is modern farming method?
42. In which prison did Nelson Mandela spent 28 years of his life?
43. Name the ruling party in Poland in 1980.
44. What is multiple cropping?
45. What does HYV stand for?

3 MARK QUESTIONS:

1. Why is human resource important fro development? Explain.
2. How do rapid industrialization and urbanization cause river pollution? Give some values that can help check the problem.
3. Why are lakes important for humans?
4. 'Dairy is a common activity in many families of Palampur.' Explain its advantages.
5. 'The farmers of Palampur have effectively utilized their land.' Justify this statement.
6. What were the political causes of the French Revolution in 1789?
7. Explain Hitler's policy towards women.
8. Distinguish between the Western Ghats and the Eastern Ghats.
9. Discuss the condition of Russia during the First World War.
10. Explain why Nazism became popular in Germany by the 1930s.
11. Mention the most significant features of the Constitution drafted in 1791 by the National Assembly of France.
12. Describe the Brahmaputra River System.
13. Describe the economic condition of Russia before 1905.
14. Explain the circumstances that led to the emergence of the middle class in France in the 18^{th} Century.
15. Name the two island groups of India. Write two characteristics of each group.
16. Why is human capital the most important factor of production? Give three reasons.
17. Describe the political conditions of Russia before the Revolution in 1905.
18. Describe any three important features of the largest peninsular river.
19. Explain the term 'Human Capital' and state its two benefits.
20. Which part of India is called Purvanchal? Give two of its features.
21. Why did the Kerensky Government become popular in Russia?
22. What were the three main changes observed after the October Revolution in Russia?
23. Describe the rise of Napoleon Bonaparte.
24. Who were the Jacobins? Explain their role in the outbreak of the French Revolution.
25. Give three economic benefits of rivers and lakes.
26. The eastern coastal plains of India are different from its western coastal plains. Sate three points of distinction.
27. Explain the theory of Plate Tectonics.
28. Why are women employed in low paid jobs?

29. State three main determinants of the earnings of an individual in the market.
30. Explain Karl Marx's theory of socialism.

5 MARK QUESTIONS:

1. Explain the role of slavery in France.
2. Relate the changes that followed the October Revolution in Russia.
3. Classify the Northern Plains according to the variations in their relief features. State one characteristic of any three of them.
4. State the aim of Production. Describe four requirements of production.
5. Describe five characteristics of the Great Himalayas.
6. What is meant by economic activities? Describe the three types of economic activities with examples?
7. Explain the factors for the meteoric rise of Hitler.
8. What are the different ways to increase production? Explain with the help of examples.
9. Describe any five features of the Northern Plains of India.
10. Locate and label the following:
    a. The Tropic of Cancer
    b. Anaimudi peak
    c. A state having common border with Pakistan.
11. What conditions led to the Russian Civil War in 1918-1920.
12. Why is educated unemployment a peculiar problem of India?
13. Explain three effects of Nazism on the school system.
14. What are the two types of unemployment found in rural areas? How does unemployment affect the overall growth of an economy?
15. Elaborate on any five factors limiting production on a farm.
16. How far do you agree that the distribution of cultivated land is unequal in Palampur? Where else in India do you find the same situation? Explain.
17. Discuss the new educational policy introduced by Hitler in Germany.
18. Why is Human resource considered to be more important than other resources like land and physical capital?
19. Discuss the significant differences between the Himalayan and the Peninsular rivers.
20. How was Holocaust practiced in Germany?

Class 9 **Hindi Worksheet**

निम्नलिखित प्रश्नों के उत्तर लिखिए -

1. मनुष्य के जीवन में पोशाक का क्या महत्व है ?
2. स्त्री के लड़के के मृत्यु का क्या कारण था ?
3. भगवाना अपने परिवार का निर्वाह कैसे करता था ?
4. लेखिका को किनके साथ चढ़ाई करनी थी ?
5. नज़दीक से एवेरेस्ट को देखकर लेखिका को कैसा लगा ?
6. डॉक्टर मीनू मेहता ने क्या जानकारियाँ दी ?
7. अतिथि लेखक के घर पर कितने दिनों से रह रहा था ?
8. लेखक अतिथि को कैसी विदाई देना चाहता था ?
9. जब अतिथि चार दिन तक नहीं गया तो लेखक के व्यवहार में क्या - क्या परिवर्तन आया ?
10. तीसरे दिन सुबह अतिथि ने क्या कहा ?
11. मनुष्य को क्या भान होता जिससे वह कीचड़ का तिरस्कार न करता ?
12. कीचड़ के प्रति किसी को सहानुभूति क्यों नहीं होती ?
13. रैदास के पदों का केंद्रीय भाव अपने शब्दों में लिखिए -
14. रैदास ने अपने स्वामी को किन - किन नामों से पुकारा है ?
15. प्रेम का धागा टूटने पर पहले की भाँती क्यों नहीं हो पाती ?
16. हमें अपने दुःख दूसरों पर क्यों नहीं प्रकट करना चाहिए ?
17. रहीम ने सागर की अपेक्षा पंक जल को धन्य क्यों कहा है ?
18. एक को साधने से सब कैसे सध जाते हैं?
19. पहले छंद में कवि की दृष्टि आदमी के किन - किन रूपों का बखान करती है ?
20. लेखिका का ध्यान आकर्षित करने के लिए गिल्लू क्या करता था ?
21. गिलहरी के घायल बच्चे का उपचार किस प्रकार किया गया ?
22. " गिल्लू" पाठ का सारांश अपने शब्दों में लिखिए -
23. स्मृति कहानी का सारांश अपने शब्दों में लिखिए -
24. .भाई के बुलाने पर घर लौटते समय लेखक के मन में किस बात का डर था?

.25 किन कारणों से लेखक ने चिट्ठियों को कुएँ से निकालने का निर्णय लिया ?

26.पत्र लेखन

" i छात्रावास में रहने का आनंद" विषय पर अपने मित्र को पत्र लिखिए -

ii .विदेश में रहने वाले अपने मित्र को भारतीय त्योहारों के विषय में पत्र लिखिए -

27.निबंध लिखिए -

आदर्श विद्यार्थी

भारतीय गाँव

जीवन का लक्ष्य

मोबाइल फोन

मेरा विद्यालय

28 .विज्ञापन लिखिए-

i .मोबाइल फोन पर एक विज्ञापन लिखिए-

ii.साबुन पर पर एक विज्ञापन लिखिए

iii.नए कपड़ों की दूकान के लिए एक विज्ञापन लिखिए-

- संवाद लेखन .29

i .दो मित्रो के बीच क्रिकेट खेल को लेकर संवाद लिखिए-

ii .नए अध्यापक के विशेष में चर्चा करते हुए दो मित्रों के बीच संवाद लिखिए-

iii .डॉक्टर और रोगी के बीच एक संवाद लिखिए -

- आप अपने बचपन की किसी घटना को कहानी के रूप में लिखिए .30

31. छुट्टीयों की दिनचर्या का वर्णन अपने शब्दों में लिखिए -