BCM School, Pakhowal Road,
Basant City, Ludhiana

Holidays Homework

2022

Std. IX

ENGLISH

A. **Read 1 to 5 Unseen passages from bbc Compacta and solve them.**

B. **Write the following in about 150-200 words. (Based on Art Integrated Activity):**

BEEHIVE:-

Prose: The Fun They Had – Descriptive Paragraph on Technology in Education can never substitute/replace Teacher by giving reference of your own Teacher.

Poetry: The Road Not Taken – Draw Pictorial representation of the poem along with explanation.

Prose: The Little Girl – Read the chapter and write a short story in your own words.

Prose: The Sound of Music-Descriptive Paragraph on Different Style of Music.

Poetry: Wind - Write a speech on 'The Wind is Both a Friend and a Foe'.

Moments: The Lost Child - Write a diary entry stating your experience in a fair.

Moments: 'The Adventures of Toto' – Descriptive Paragraph on 'Protection of Animal Rights' by mentioning any animal.

C. **Diary Entry in about 120-150 words:- (Based on Art Integrated Activity):**

*Describe a Charity Show that you organized in your school for the flood victims of Andhra Pradesh.

*Describe how you stayed for a week at a house of your friend in Andhra Pradesh. Note down your experience in a diary.

*Describe your experience of attending a grand wedding party hosted at a five star hotel in Chennai.

D. **Draw the Layouts (Formats) of Diary Entry and Article Writing on A4 Sheets and decorate them artistically.**

E. **Complete all the Assignments of Gap Filling in bbc Compacta.**

F. **Revise rules of Tenses and Determiners and do Practice from bbc Compacta.**

G. **Read Chapter no 3 to 5 of 'Beehive'.**

H. **Prepare a File Folder (Portfolio) of English and put all the activities (Point B, C&D) of English in it.**

CHEMISTRY

1. Make a chart of atomic numbers and electronic configuration of.1 to 20 elements.

2. Find out atleast 30 extra questions of ch.2 write down in your notebook with their answers.

4. Prepare project on different types of separation techniques, their principles and diagrams.

PHYSICS

1. **Learn chapter 8 Motion and write given assignment in fair notebook of physics.**
2. **Art integrated activity:**

Draw pictures depicting Newton's First Law , Newton's Second Law and Newton's Third Law on A4 sheets .(Students should use appropriate colours, sketches for drawing work, glitter sheets or relative materials for creativity.)

ASSIGNMENT AND NOTES

1. An object experiences a net zero external unbalanced force. Is it possible for the object to be travelling with a non-zero velocity? If yes, state the conditions that must be placed on the magnitude and direction of the velocity. If no, provide a reason.

Solution:

Yes. It is possible for the object to be travelling with non-zero velocity. When a nonzero unbalanced force acts on an object, its velocity changes. Here change may be velocity magnitude or velocity direction or both magnitude and direction. Therefore, when zero external unbalanced force acts on a body, its magnitude and direction of velocity must be constant.

2. When a carpet is beaten with a stick, dust comes out of it. Explain.

Solution:

When a carpet is beaten with a stick, carper comes to motion, but the dust particles in the carpet tend to remain at rest due to inertia. This appears like dust particles coming out of the carpet.

3. Why is it advised to tie any luggage kept on the roof of a bus with a rope?

Solution:

When bus accelerates from rest, suddenly bus moves forward, but the luggage on the roof of the bus tend to remain at rest due to inertia. Hence, they might fall off the roof if not tied with rope. Similarly, when the moving bus stops suddenly due to inertia, the luggage on the roof tend to continue to remain in motion. Thus, they might fall off the roof if not tied with rope.

4. A batsman hits a cricket ball which then rolls on a level ground. After covering a short distance, the ball comes to rest. The ball slows to a stop because

(A) the batsman did not hit the ball hard enough.

(B) velocity is proportional to the force exerted on the ball.

(C) there is a force on the ball opposing the motion.

(D) there is no unbalanced force on the ball, so the ball would want to come to rest.

Solution: (C)

When the ball rolls on the ground, it comes to rest after covering short distance on the ground. Here friction is acting on the object opposite to the direction of motion. Due to the friction ball slows down continuously and stops after covering a short distance.

5. A truck starts from rest and rolls down a hill with a constant acceleration. It travels a distance of 400 m in 20 s. Find its acceleration. Find the force acting on it if its mass is 7 tonnes (Hint: 1 tonne = 1000 kg).

Solution:

Given,

The mass of the truck, m = 7 tonnes = 7000 kg

The initial velocity of the truck, u = 0 (∵ the truck is starting from rest)

The distance covered by the truck, S = 400 m

Time taken, t = 20 s

Let the constant acceleration of the truck be= a

From equations of motion,

$S = ut + 1/2at^2$

⇒ 400 = 0 × t +1/2 x a 400

⇒ a =2 m s−2

∴ From Newton's second law of motion, the force acting on the truck, F = m × a

⇒ F = 7000 × 2 = 14000 N or 14 kN

∴ Acceleration the truck is 2 m s−2 and the force acting on the truck is 14000 N or 14 kN.

6. A stone of 1 kg is thrown with a velocity of 20 m s–1 across the frozen surface of a lake and comes to rest after travelling a distance of 50 m. What is the force of friction between the stone and the ice?

Solution:

Given,

The initial velocity of the stone, u = 20 m s−1

The final velocity of the stone, v = 0 (∵ stone is coming to rest after travelling 50 m)

Distance covered by the stone before coming to rest S = 50 m

Let the constant acceleration/retardation of the stone be a

From equations of motion,

v2 − u2 = 2as

⇒ $0^2 - 20^2 = 2 \times a \times 50$

⇒ a = −400/100

⇒ a = −4 m s−2

From Newton's second law of motion,

Force of friction acting on the stone F = m × a

⇒ F = 1 × (−4) = −4 N

Therefore, friction force acting between the stone and the ice is −4 N

7. A 8000 kg engine pulls a train of 5 wagons, each of 2000 kg, along a horizontal track. If the engine exerts a force of 40000 N and the track offers a friction force of 5000 N, then calculate: (a) the net accelerating force and (b) the acceleration of the train.

Solution:

Mass of the train m = 2000 × 5 = 10000 kg

Force exerted by the engine Fengine = 40000 N

Force of friction on the train, Ffriction = 5000 N

Let the acceleration of the train be =a

(a) The net force acting on the train

Fnet = force exerted by the engine − force of friction

⇒ Fnet = 40000 − 5000 = 35000 N

(b) From Newton's second law of motion, Fnet = m × a

⇒ 35000 = 18000 × a

⇒ a =35000

10000 = 3.5 m s−2

Therefore, the acceleration of the train is 3.5 m s−2 and the net accelerating force on the train is 35000 N.

8. An automobile vehicle has a mass of 1500 kg. What must be the force between the vehicle and road if the vehicle is to be stopped with a negative acceleration of 1.7 m s–2?

Solution:

Given, the mass of the automobile m = 1500 kg

Negative acceleration or retardation of the automobile a = −1.7 m s−2

From Newton's second law of motion, F = m × a

⇒ F = 1500 × (−1.7) = −2550 N

Therefore, the retarding force required between the road and the automobile is 2550 N.

9. What is the momentum of an object of mass m, moving with a velocity v?

(A) $(mv)^2$

(B) mv^2

(C) $1/2mv^2$

(D) mv

Solution: (D)

The momentum of an object of mass m moving with velocity v is defined as, P = m × v

10. Using a horizontal force of 200 N, we intend to move a wooden cabinet across a floor at a constant velocity. What is the friction force that will be exerted on the cabinet?

Solution:

Given, The horizontal force applied, F applied = 200 N

Let the friction force required be F friction

As the wooden cabin is to move with constant velocity, the net force acting on it is zero.

⇒ F applied + F friction = 0

⇒ F friction = − F applied = −200 N

∴ Friction force exerted on the cabin is −200 N

11. Two objects, each of mass 1.5 kg, are moving in the same straight line but in opposite directions. The velocity of each object is 2.5 m s-1 before the collision during which they stick together. What will be the velocity of the combined object after collision?

Solution:

Given

Masses of the two objects, m1 = m2 = 1.5 kg

The velocity of the first object v1 = 2.5 m s−1

The velocity of the second object v2 = −2.5 m s−1 (∵ both the objects are moving in the opposite direction)

Let the velocity of the combined object after the collision be v

From the law of conservation of linear momentum,

The linear momentum before collision = The linear momentum after the collision

m1 × v1 + m2 × v2 = m1 × v + m2 × v

⇒ v =m1 × v1 + m2 × v2 / m1 + m2

⇒ v =1.5 × 2.5 − 1.5 × 2.5

1.5 + 1.5 = 0

∴ the velocity of the combined object after the collision is zero.

12. According to the third law of motion when we push on an object, the object pushes back on us with an equal and opposite force. If the object is a massive truck parked along the roadside, it will probably not move. A student justifies this by answering that the two opposite and equal forces cancel each other. Comment on this logic and explain why the truck does not move.

Solution:

According to the third law of motion when we push an object, the object pushes us back with an equal and opposite force. These two forces are called as actionreaction pair. Action and reaction forces never act on the same object. Hence, they never cancel each other. When we push a massive truck parked along the roadside, it will probably not move because applied force might not be strong enough to overcome the friction between the truck and the road. The justification given by the student is wrong.

13. A hockey ball of mass 200 g travelling at 10 m s–1 is struck by a hockey stick so as to return it along its original path with a velocity at 5 m s–1. Calculate the magnitude of change of momentum occurred in the motion of the hockey ball by the force applied by the hockey stick.

Solution:

Given

The mass of the hockey ball, m = 200 g = 0.2 kg

The initial velocity of the hockey ball, u = 10 m s−1

The initial momentum of the hockey ball Pi = 0.2 × 10 = 2 kg m s−1

The final velocity of the hockey ball, v = −5 m s−1

Final momentum of the hockey ball Pf = 0.2 × (−5) = −1 kg m s−1

Change in the momentum ΔP = Pf − Pi = −1 − 2 = −3 kg m s−1

∴ the magnitude of change in momentum is 3 kg m s−1

14. A bullet of mass 10 g travelling horizontally with a velocity of 150 m s–1 strikes a stationary wooden block and comes to rest in 0.03 s. Calculate the distance of penetration of the bullet into the block. Also, calculate the magnitude of the force exerted by the wooden block on the bullet.

Solution:

Given

The mass of the bullet m = 10 g = 0.01 kg

The initial velocity of the bullet u = 150 m s−1

The final velocity of the bullet v = 0

Time taken for the bullet to come to rest t = 0.03 s

Assuming the wooden block offers constant retardation during the penetration.

Let S be the distance the bullet covered before it comes to rest and a be the acceleration of it.

From the equation of motion,

v = u + at

⇒ a =v – u/t

⇒ a =0 – 150/0.03 = −5000 m s−2

And the retardation force exerted by the wooden block F = ma

⇒ F = 0.01 × (−5000) = −50 N

Again, from equations of motion,

$V^2 – u^2 = 2aS$

⇒ $S = v^2 – u^2/2a$

⇒ $S = 0−150^2/2(−5000) = 2.25$ m

Hence the magnitude of the force exerted by the wooden block is 50 N and the distance of penetration is 2.25 m

15. An object of mass 1 kg travelling in a straight line with a velocity of 10 m s–1 collides with, and sticks to, a stationary wooden block of mass 5 kg. Then they both move off together in the same straight line. Calculate the total momentum just before the impact and just after the impact. Also, calculate the velocity of the combined object.

Solution:

Given,

The mass of the object m = 1 Kg

The initial velocity of the object u = 10 m s−1

Mass of the wooden block $M = 5$ kg
The initial velocity of the wooden block is 0
Total momentum before impact, $P_i = m \times u + M \times 0 = 1 \times 10 = 10$ kg m s−1
Let the final common velocity be v
From the principle of conservation of the linear momentum,
The linear momentum before the impact = the linear momentum after the impact
∴Total final momentum after impact $P_f = 10$ kg m s−1
Also, from the principle of conservation of the linear momentum,
$m \times u + M \times 0 = (m + M) \times v$
$\Rightarrow v =$
$m \times u$
$m + M = 1 \times 10$
$1 + 5 = 1.67$ m s−1
$= (1 + 5) \times 1.67 = 10$ kg m s−1
Hence linear momentum before and after the impact is 10 kg m s−1 and the velocity of the combines object is 1.67 m s−1

16. An object of mass 100 kg is accelerated uniformly from a velocity of 5 m s–1 to 8 m s–1 in 6 s. Calculate the initial and final momentum of the object. Also, find the magnitude of the force exerted on the object.

Solution:

Given,
The mass of the object $m = 100$ kg
The initial velocity of the object $u = 5$ m s−1
Initial momentum $P_i = m \times u = 100 \times 5 = 500$ kg m s−1
The final velocity of the object $v = 8$ m s−1
Final momentum $P_f = m \times v = 100 \times 8 = 800$ kg m s−1
Time taken $t = 6$ s
From Newton's second law of motion, $F = \Delta P/\Delta t = P_f - P_i/t$
$F = 800 - 500/6$
$\Rightarrow F = 50$ N
∴ The initial and final momenta of the object are 500 kg m s−1 and 800 kg m s−1 respectively and the magnitude of the force exerted is 50 N

BIOLOGY

1. Prepare a project on natural resources for internal assessment along with biogeochemical cycles (diagram) (NITROGEN CYCLE, CARBON CYCLE, OXYGEN CYCLE)
2. Read the chapter tissue and find 20 questions and write in your notebook
3. Draw following diagrams on scrapbook
    a. Plant cell
    b. Animal cell
    c. Xylem
    d. Phloem

SOCIAL SCIENCE

- **ASSIGNMENT**: Physical features of India

  Art Integrated Activities:

  a) Compare physical forms of Andhra Pradesh and Punjab (R. No.: 1-15)

  b) River System (R. No.: 16-30)

  c) Climate (R. No.: 31-45)
- Flow chart on division of French society during late 18th century.
- **MAP WORK:**

  Locate and label the following items on the Indian Political map

  a. Geography: Ch- 1 and 2

  b. History: Ch- 1
- Read (covered) chapters thoroughly, test will be conducted in the month of July after vacation.
- **PROJECT WORK**:

  "Do You Miss the days when homework was just coloring"

  - **R. No.: 1-15:-** Make project file based on structural improvement in buildings in rural/ urban area in coastal areas prone to floods/cyclones or in areas prone to earthquakes/landslides. Show the special features of the buildings and indicate the early warning system that could be best used in that community.
  - **R. No.: 16-31:-** Prepare a pocket guide on "First Aid" for your school. The First Aid pocket guide should contain aid that needs to be given for fractures, poisoning, cuts and burns, heat and cold wave and other threats that are prevalent in that area. The content shared in the guide should be supported with adequate pictures so as to give a clear and elaborate understanding about the topic.
  - **R. No.: 32-42:-** Choose any one method of communication from various means of communication like radio/satellite/television/ Ham radio which are used by Government departments such as the Indian Meteorological Department to disseminate information. Find out how the information is disseminated by them at various levels during disasters. Prepare a project file.
  - **R. No.: 43 onwards: -** Prepare a project file on "Role of Govt./Non-Government functionaries in your locality in Disaster Management". You can interview/ contact any Govt. /Non-Government functionaries in your locality on their role in Disaster Management (Sarpanch/MP/MLA Head of any NGO working in your locality – dealing in Disaster Management Police inspector, Superintendent of Police etc.)

Assignment

Ch: Physical Features of India

1. The Northern Plains has been formed by the interplay of three major river systems, namely?
2. Name the western and the eastern edges of the Deccan Plateau.
3. The part lying between Teesta and Dihang rivers is known as?
4. What are barchans?
5. Which is the highest peak in India?
6. Name the valleys lying between Lesser Himalayas and the shiwaliks?
7. What do we mean by the term ‘Bhangar’?
8. Which two hills are in the southeast of the Eastern Ghats?
9. What is the name of the part of the Himalayas lying between the Kali and the Teesta rivers?
10. Name the Indian state where Kanchenjunga is located?
11. What do you mean by the word ‘Doab’?
12. Which river drains the Chotanagpur Plateau?
13. What do you understand by ‘duns’?
14. What is the Peninsular Plateau composed of?
15. How long and wide are the Himalayas?
16. Why are the Himalayas called as young mountains?
17. Name the major physical divisions of India.
18. Which river drains the Chotanagpur Plateau?
19. Which range of the Himalayas has hill stations?
20. Mention a characteristic feature of Himadri.
21. Which part of the Himalayas is known as Purvachal?
22. Name two states of India where highest peaks of Himalayas are located.
23. What is the average height of the Shiwaliks?
24. What is Khadar?
25. What is the Terai Zone?

HINDI

1. पांच औपचारिक पत्र लिखें।
2. पांच अलग-अलग विषयों पर संवाद लेखन करें।
3. अपना portfolio बनाएं

   पोर्टफोलियो -

   नाम

   उम्र

   जन्म तिथि

   माता का नाम

   पिता का नाम

   रुचियाँ

   उपलब्धियां (achievements)

4. दो आंध्र प्रदेश के और दो पंजाब के प्रसिद्ध संतों के जीवन पर आधारित प्रोजेक्ट बनाएं।
5. Revise the syllabus of April and May

PUNJABI

1.ਆਪਣੀ ਪਾਠ ਪੁਸਤਕ ਵਿੱਚ ਦਰਜ ਇਕਾਂਗੀ ਸਿਰਜਣਾ ਨੂੰ ਧਿਆਨਪੂਰਵਕ ਪੜ੍ਹੋ ਤੇ ਉਸ ਵਿਚੋਂ ਸਮਾਜ ਨੂੰ ਜੋ ਸੇਧ ਦੇਣ ਲਈ ਜੋ ਸਿੱਖਿਆ ਮਿਲਦੀ ਹੈ ਉਸ ਬਾਰੇ ਲਿਖੋ।

2.ਆਪਣੀ ਵਿਆਕਰਣ ਪੁਸਤਕ ਵਿੱਚੋਂ ੲ ਤੇ ਸ ਨਾਲ ਸਬੰਧਿਤ ਦਸ ਦਸ ਮੁਹਾਵਰੇ ਲਿਖੋ।

3. ਆਪਣੇ ਸਕੂਲ ਮੈਗਜ਼ੀਨ ਲਈ 'ਮਿਹਨਤ' ਵਿਸ਼ੇ ਨੂੰ ਦਰਸਾਉਂਦੀ ਕਹਾਣੀ ਲਿਖੋ।

4. ਆਪਣੀ ਵਿਆਕਰਣ ਪੁਸਤਕ ਵਿੱਚੋਂ ਵਿਰੋਧੀ ਸ਼ਬਦ, ਲਿੰਗ ਬਦਲੋ, ਸ਼ਬਦ ਸ਼ੁੱਧੀ ਤੇ ਵਿਸਮਿਕ ਪੜ੍ਹੋ ਤੇ ਯਾਦ ਕਰੋ।

5. ਕੋਈ ਇੱਕ ਇੱਕ ਨਿੱਜੀ, ਦਫ਼ਤਰੀ ਤੇ ਬਿਨੈ ਪੱਤਰ ਲਿਖੋ

6. ਹੇਠ ਲਿਖੇ ਵਿਸ਼ਿਆਂ ਤੇ ਲੇਖ ਲਿਖੋ।

- ਇੱਕ ਚੁੱਪ ਸੌ ਸੁੱਖ।
- ਸਮਾਜਿਕ ਕੁਰੀਤੀਆਂ
- ਨਕਲ ਦੀ ਬੁਰਾਈ।

7. ਹੇਠ ਲਿਖੇ ਵਿਸ਼ੇ ਤੇ ਪ੍ਰਾਜੈਕਟ ਬਣਾਓ-:

8. ਪੰਜਾਬ ਤੇ ਆਂਧਰਾ ਪ੍ਰਦੇਸ਼ ਦੇ ਖਾਣ-ਪੀਣ ਤੇ ਹਾਰ-ਸ਼ਿਗਾਰ ਨੂੰ ਦਰਸਾਉਂਦਾ ਕੋਲਾਜ਼ ਬਣਾਓ।

ARTIFICIAL INTELLIGENCE

1. How AI is used in home automation. Explain with examples.
2. Explain three domains of AI.
3. Give three examples each where DATA, CV, NLP domains are used.

MATHEMATICS

- **Solve the given assignment in your assignment notebook.**
- **Revise the syllabus covered in the month of April and May.**
- **Do the following activities in your practical notebook.**

Activities

1. To make a square root spiral by using paper folding.
2. To verify the algebraic identity $(a+b)^3=a^3+b^3+3a2b+3ab^2$ geometrically by using sets of unit cubes.
3. To obtain the mirror image of a given geometrical figure with respect to x-axis and y-axis.
4. To obtain a linear equation and draw a graph which represents the linear equation (ax+by+c=0)
5. To verify that in a triangle, the line joining the mid points of any two sides is parallel to the third side and half of it by paper folding and pasting. (Mid Point Theorem)
6. To verify that the angle subtended by an arc at the centre of circle is double the angle subtended at any point on the remaining part of the circle, experimentally.
7. To show that the angles subtended the chord of a circle in the same segment are equal, experimentally.
8. To verify that angle in a semicircle is a right angel in a major segment is acute; angle in a minor segment is obtuse by paper folding.
9. To show graphically the data collected by the students and to find their mean, median and mode.
   - **Make any one activity (of your choice) as an art integrated from above 9 activities on A4 sheet separately.**

Assignment

1. Express the following decimals in the form $\frac{p}{q}$.

   (a) $0.3\overline{2}$ (b) $0.12\overline{3}$
2. Insert 10 rational numbers between $\frac{-3}{11}$ and $\frac{8}{11}$
3. Represent $\sqrt{6}, \sqrt{7}, \sqrt{8}$ on the number line.
4. Evaluate:

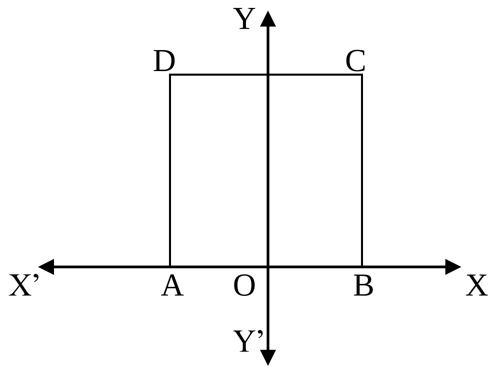
   (a) $\left(\frac{2}{11}\right)^4 \times \left(\frac{11}{3}\right)^2 \times \left(\frac{3}{2}\right)^3$

   (b) $\left(\frac{64}{25}\right)^{\frac{-3}{2}}$
5. Simplify: $(25)^{\frac{-1}{3}} \times \sqrt[3]{16}$
6. If both 'a' and 'b' are rational numbers, find the values of a and b.

   (a) $\frac{3+\sqrt{7}}{3-\sqrt{7}} = a + b\sqrt{7}$

   (b) $\frac{5+\sqrt{3}}{7-4\sqrt{3}} = 47a + \sqrt{3}b$
7. If $x = 2 + \sqrt{3}$, find the value of $x^2 + \frac{1}{x^2}$
8. Factorize: $p^6 - 512q^6$
9. Find the remainder when $p(y) = y^3 + y^2 + 2y + 3$ is divided by $y + 2$.
10. Find the value of a, if $x - a$ is a factor of $x^3 - a^2x + x + 2$.
11. The perimeter of an isosceles triangle is 32 cm. The ratio of the equal side to its base is 3 : 2. Find the area of the triangle.
12. The sides of a triangular field are 41 m, 40 m and 9 m. Find the number of rose beds that can be prepared in the field, if each rose bed on an average needs 900 cm^2 space.
13. Find the cost of laying grass in a triangular field of sides 50 m, 65 m and 65 m at the rate of 7 per m^2.

14. The sides of a triangle are x, x+1, 2x-1 and its area is $x\sqrt{10}$. What is the value of x?
15. Find the values of a and b so that the polynomial $x^3 - ax^2 - 13x + b$ has $(x - 1)$ and $(x + 3)$ as factors.
16. Factorise: $x^4 + x^3 - 7x^2 - x + 6$
17. Evaluate: 185 x 185 – 115 x 115
18. Write in expanded form: $(9x + 2y + z)^2$
19. Write in expanded form: $(2x + 3y)^3$
20. In figure, ABCD is a square with each side 6 cm, O is the mid-point of AB. Find the coordinate of A, B, C, D.



21. Which of the following points lies on X-axis? Which on Y-axis?
    A(0,2), B(5,6), C(-3,0), D(0,-3), E(0,4), F(6,0), G(3,0).
22. In which quadrant do the following points lie?
    (a) (2,-1) (b) (-1,7) (c) (-2,-3) (d) (4,5)
23. Plot the points A(0,3), B(5,3), C(4,0) and D(-1,0) on the graph paper. Identity the figure ABCD and find whether the point (2,2) lies inside the figure or not?
24. Plot the points A(-3,3), B(3,-3), C(3,3), D(-3,3)in the Cartesian plane. Also, find the length of line segment AB.
25. Plot the points P(2,0), Q(5,0) and S(2,3). Find the coordinates of the points R such that PQRS is square.
26. Three vertices of rectangle are (-1,1), (5,1) and (5,3). Plot these points and find the coordinates of the fourth vertex.