



Delhi Public School, Howrah

PERIODIC ASSESSMENT - 2 (2025-2026)

Class-IX

Care must be taken not to write anything on the question paper. All the questions must be attempted in the correct sequence.

Subject: Mathematics (Code No-041)

Time: 3 Hours

F.M. 80

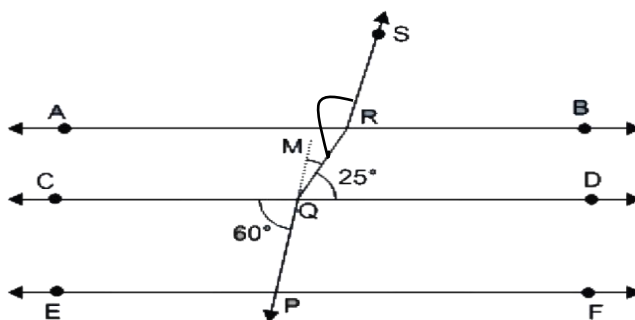
General Instructions:

1. This Question Paper has 5 Sections A, B, C, D and E.
2. Section A has 20 MCQs carrying 1 mark each.
3. Section B has 5 questions carrying 02 marks each.
4. Section C has 6 questions carrying 03 marks each.
5. Section D has 4 questions carrying 05 marks each.
6. Section E has 3 case based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.
7. All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 1 Qs of 3 marks and 2 Questions of 2 marks has been provided.
8. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

SECTION A

(Section A consists of 20 questions of 1 mark each)

- 1) In a $\triangle ABC$ if $2\angle A = 3\angle B = 6\angle C$, the measure of $\angle A$ is
(a) 30° (b) 90° (c) 75° (d) 60°
- 2) AB and CD are two equal chords of a circle with centre O. If the perpendicular distance of chord CD from centre O is 3 cm, then what is the perpendicular distance of chord AB from the centre?
(a) 3 cm (b) 6 cm (c) 9 cm (d) none of these
- 3) The equation of x-axis is of the form
(a) $x = y$ (b) $x = 0$ (c) $y = 0$ (d) $y = 3$
- 4) In $\triangle ABC$ and $\triangle QRP$, $AB = QR$ and $AC = QP$. Which angle of $\triangle QRP$ should be equal to $\angle A$ of $\triangle ABC$ so that two triangles are congruent by SAS rule.
(a) $\angle P$ (b) $\angle Q$ (c) $\angle R$ (d) none of these
- 5) If $\frac{a}{b} + \frac{b}{a} = -1$ ($a, b \neq 0$), the value of $a^3 - b^3$ is
(a) 1 (b) -1 (c) 0 (d) $\frac{1}{2}$
- 6) If PQRS is a parallelogram, then find the value of $\angle Q - \angle S$.
(a) 60° (b) 45° (c) 0° (d) 90°
- 7) In the given figure, if $AB \parallel CD \parallel EF$, $PQ \parallel RS$, $\angle RQD = 25^\circ$ and $\angle CQP = 60^\circ$, then $\angle QRS$ is equal to



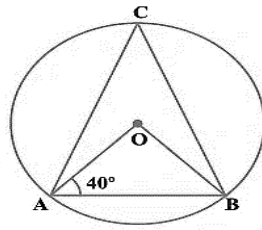
- (a) 85° (b) 135° (c) 145° (d) 110°
- 8) Find the co-ordinates of the point where the graph of the equation $3x + 4y = 12$ cuts the x-axis.
(a) (4, 4) (b) (0, 4) (c) (4, 0) (d) (4, -4)
- 9) Degree of a zero polynomial is
(a) 0 (b) 1 (c) not defined (d) None of these
- 10) If co-ordinate of a point P is (a, b) where $a, b < 0$; then the point lies on the
(a) I quadrant (b) II quadrant (c) III quadrant (d) IV quadrant

11) Axioms are assumed -

- (a) Theorems
(c) Definitions

- (b) Universal truths specific to geometry
(d) Universal truths in all branches of mathematics

12)



In the above figure, if $\angle OAB =$

40° , then $\angle ACB$ is equal to:

- (a) 50° (b) 40° (c) 60° (d) 70°

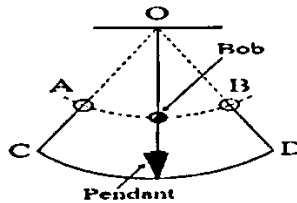
13) If the area of an equilateral triangle is $36\sqrt{3} \text{ cm}^2$, then its perimeter is

- (a) 64 cm (b) 60 cm (c) 12 cm (d) 36 cm

14) $\sqrt[4]{\sqrt[3]{2^2}}$ equals to

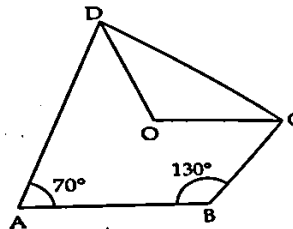
- (a) $2^{-\frac{1}{6}}$ (b) 2^{-6} (c) $2^{\frac{1}{6}}$ (d) 2^6

15) A pendulum is swinging from point A to B as shown in the figure. Along with its bob, the pendant below is also swinging from point C to D. Which of the following is true?



- (a) $\angle AOB > \angle COD$ (b) $\angle AOB = \angle COD$ (c) $\angle AOB < \angle COD$ (d) None of these

16) In the adjoining quadrilateral $\angle A = 70^\circ$, $\angle B = 30^\circ$ and the bisectors of $\angle C$ and $\angle D$ meet at O. then $\angle COD$ is equal to,



- (a) 160° (b) 80° (c) 100° (d) None of these

17) 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}

18) 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

19) **Assertion (A):** In $\triangle ABC$, $\angle C = \angle A$, $BC = 4 \text{ cm}$ and $AC = 5 \text{ cm}$. Then, $AB = 4 \text{ cm}$.

Reason (R): In a triangle, angles opposite to two equal sides are equal.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is true but Reason (R) is false
(d) Assertion (A) is false but Reason (R) is true

20) **Assertion (A):** If the ordinate of a point is equal to its abscissa, then the point lies either in the first quadrant or in the second quadrant.

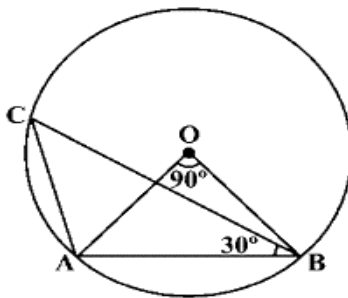
Reason (R): A point whose both the coordinates are negative will lie in third quadrant.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is true but Reason (R) is false
(d) Assertion (A) is false but Reason (R) is true

SECTION B

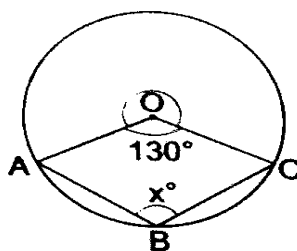
(Section B consists of 5 questions of 2 marks each)

- 21) (a) In the figure given below, $\angle AOB = 90^\circ$ and $\angle ABC = 30^\circ$, Then find $\angle CAO$.

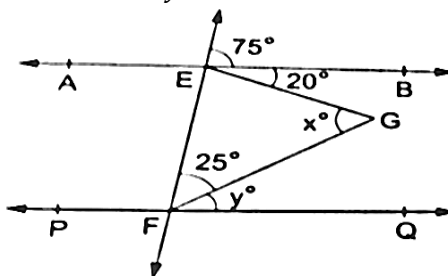


OR

- 21(b) In the figure mentioned below, O is the centre of a circle. If $\angle AOC = 130^\circ$, then find the value of x .



- 22) In the given figure, $AB \parallel PQ$. Find the value of x and y .



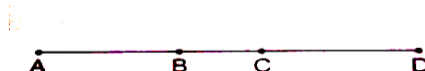
- 23) In a triangle ABC, if $\angle A - \angle B = 33^\circ$ and $\angle B - \angle C = 18^\circ$, then find the measure of $\angle B$.

- 24) Show that a median of a triangle divides it into two triangles of equal areas.

- 25) (a) 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.

OR

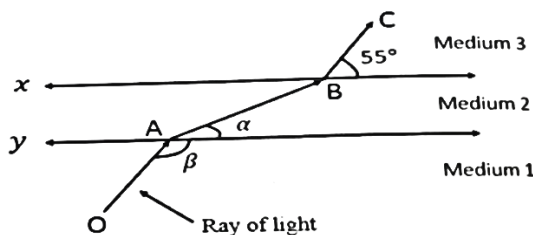
- 25) (b) In the given figure, if $AC = BD$, then prove that $AB = CD$. State Euclid's Axiom used to solve this.



SECTION C

(Section C consists of 6 questions of 3 marks each)

- 26) In the figure given below ray of light is entering from medium 1 to medium 2 then medium 3. The light is changing its path due to change in medium as shown below.



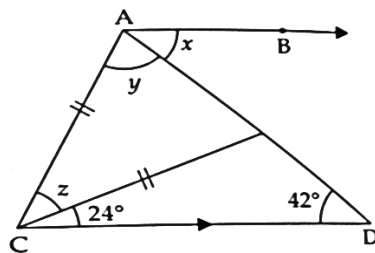
Given that $x \parallel y$, $OA \parallel BC$ and AB is not parallel to BC ? What is the value of $\angle \alpha$ and $\angle \beta$?

- 27) If a and b are rational numbers and $\frac{3+\sqrt{7}}{3-\sqrt{7}} = a - b\sqrt{7}$, find the value of a and b .

- 28) Represent the real number $\sqrt{7.5}$ on the number line

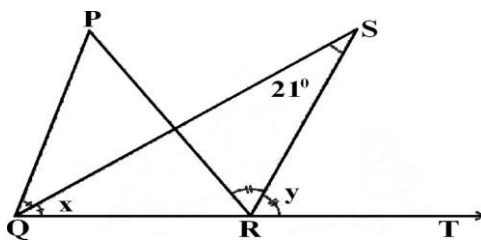
- 29) Prove that, if the diagonals of a quadrilateral bisect each other, then it is a parallelogram.

30) (a) In the figure given below, $AB \parallel CD$. Find the values of x , y and z .

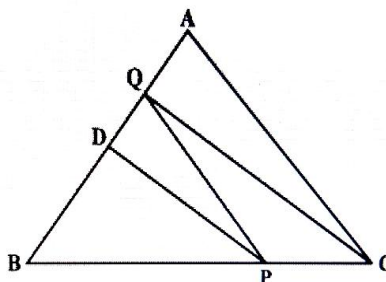


OR

30)(b) In the given figures RS and QS are bisector of $\angle PRT$ and $\angle PQR$ respectively. Find the value of $\angle QPR$.



31) In $\triangle ABC$, D is the midpoint of AB and P is any point on BC. If $CQ \parallel PD$ meets AB in Q, then prove that $\text{ar}(\triangle BPQ) = \frac{1}{2} \text{ar}(\triangle ABC)$

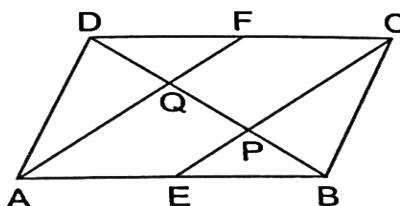


SECTION D

(Section D consists of 4 questions of 5 marks each)

32) If the polynomials $ax^3 + 3x^2 - 13$ and $2x^3 - 5x + a$ leave the same remainder when divided by $x + 2$, find the value of a .

33) (a) In the given figure, E and F are the mid-points of sides AB and CD respectively of parallelogram ABCD. Show that $DQ = \frac{1}{3} BD$.



OR

33)(b) State and prove midpoint theorem of the triangle.

34) A triangle and a parallelogram have the same base and same area. If the sides of the triangle 26cm, 28cm and 30cm, and the parallelogram stands on same base 28cm, then find the height of the parallelogram.

35)(a) Prove that, the angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

OR

35)(b) Three girls Reshma, Salma and Mandip are playing a game by standing on a circle of radius 5m drawn in a park. Reshma throws a ball to Salma, Salma to Mandip, Mandip to Reshma. If the distance between Reshma and Salma and between Salma and Mandip is 6m each, what is the distance between Reshma and Mandip?

SECTION E

(Section E consists of 3 questions of 4 marks each)

36) On his birthday, Arun decided to distribute pens in his class. The number of pens each student received is represented by the polynomial: $P(x) = (x - 2)$ and the total number of pens distributed in the class is

represented by: $F(x) = x^3 - 9x^2 + 26x - 24$. Since Total Pens = (Number of students) $\times$ (Pens per student) the number of students in the class is represented by another polynomial $f(x)$ such that $F(x) = f(x) \cdot P(x)$.



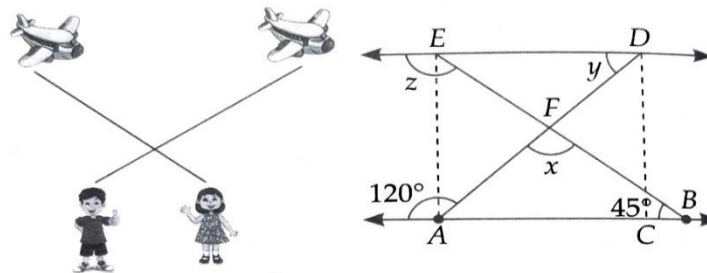
Based on the above information, answer the following questions:

- a) Verify whether $x = 3$ is a zero of the polynomial $F(x)$. 1
- b) Find the total number of students in the class, if it is represented by the polynomial $f(x)$. 1
- c) Find the zeroes of $f(x)$. 2

OR

- d) Find the polynomial $f(x)$ by dividing $F(x)$ with $P(x)$. 2

37) Riya and Parth are standing at some distance at B and A respectively and they observe the two aeroplanes at E and D with same height with their respective defined angles as shown



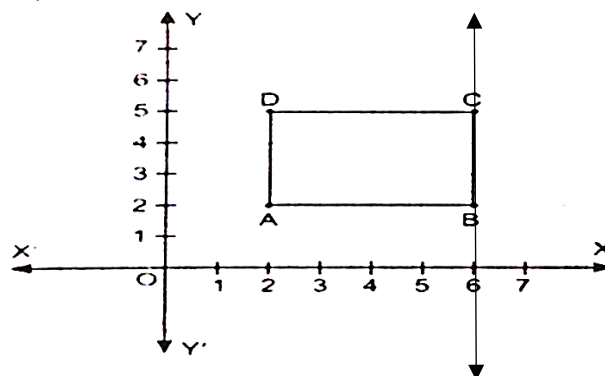
If we draw two imaginary lines AB and CD and name the angles as shown above, then answer the following questions:

- a) Is AE parallel to CD? Justify your answer. 1
- b) What is the measurement of $\angle BED$ 1
- c) Find the value of $x + y + z$. 2

OR

- d) If $\angle EAB = 50^\circ$, then find the value of $\angle BCD$. 2

38) For a group activity of class IX, teacher divided the space as Cartesian plane and chairs are placed at various points for the group of four students at points A, B, C and D.



Based on the above information, answer the following questions:

- a) What is the product of abscissa of point B and ordinate point D. 1
- b) What is the distance between point A to C. 1
- c) Write the equation of line CB. 2

OR

- d) Find the area of quadrilateral ABCD. 2
