

30.06.25✓

Delhi Public School, Howrah

PERIODIC ASSESSMENT - I (2025 - 26)

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: 1 Hour 30 minutes

Maximum Marks: 40

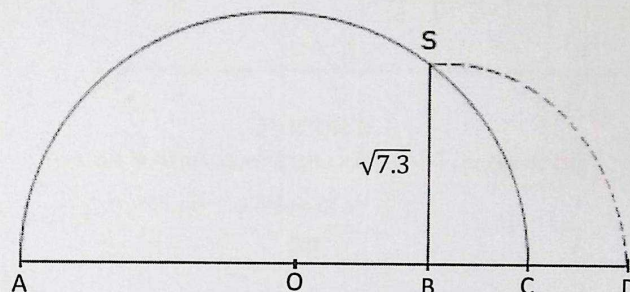
General Instructions:

1. This Question Paper has 5 Sections A, B, C, D and E.
2. Section A has 10 MCQs carrying 1 mark each.
3. Section B has 3 questions carrying 02 marks each.
4. Section C has 2 questions carrying 03 marks each.
5. Section D has 2 questions carrying 05 marks each.
6. Section E has 2 case based integrated units of assessment (04 marks each) with subparts of the values of 1, 1 and 2 marks each respectively.
7. All Questions are compulsory. However, an internal choice in 1 Q of 5 marks, 1 Q of 3 marks and 1 Q of 2 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E.
8. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

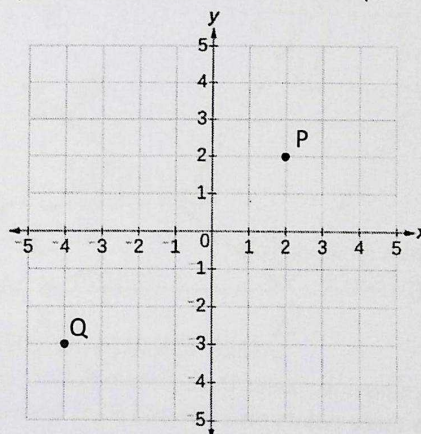
SECTION A

Section A consists of 10 questions of 1 mark each.

- Q1. In the given figure O is the mid-point of AC and $\angle SBC = 90^\circ$. The length of the line segment SB and BD is $\sqrt{7.3}$ unit. The length of line segment AC is

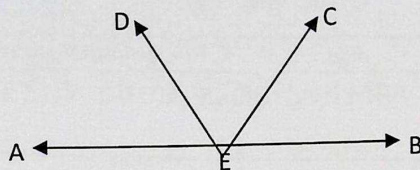


- (A) 7.3 unit (B) 8.3 unit (C) 10.3 unit (D) None of the these
- Q2. If $p(x) = 2x + 2$, then $p(1) + 2$ is equal to
 (A) 0 (B) 4 (C) 6 (D) 0
- Q3. In the given cartesian plane point P and point Q are shown. The value of (ordinate of P) – (abscissa of Q) is

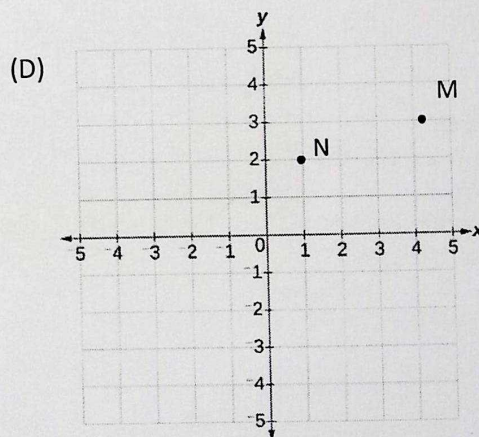
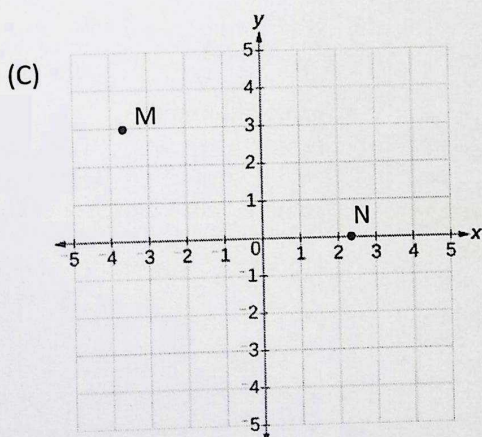
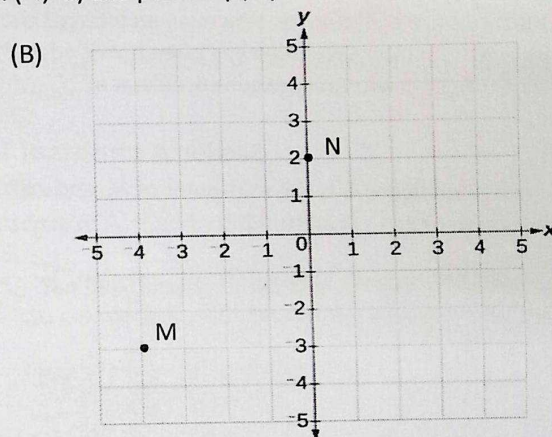
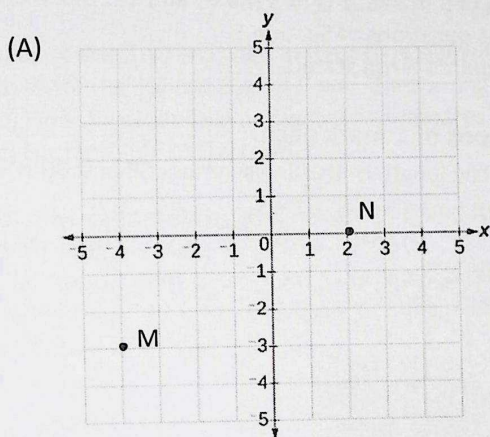


- (A) 6 (B) 10 (C) 2 (D) 12

- Q4. The coefficient of the variable x in the linear equation $5(2x - 9) + 5(3y - 3x) - 10 = 0$ is
 (A) -10 (B) 0 (C) 8 (D) -5
- Q5. In the given figure, AB is a straight line. If $\angle AEC = 135^\circ$, $\angle BED = 145^\circ$, then the value of $\angle DEC$ is



- (A) 5° (B) 45° (C) 100° (D) 135°
- Q6. The number $\frac{0}{-0.00111000000011111111\dots}$ is not a
 (A) integer (B) whole number (C) rational number (D) irrational number
- Q7. If $\frac{a}{b} + \frac{b}{a} = -1$, where $a, b \neq 0$ then the value of $a^3 - b^3$ is
 (A) 1 (B) -1 (C) 0 (D) $\frac{1}{2}$
- Q8. Which of the following diagram represent the point M (-4, -3) and point N (0, 2)?



- Q9. If $x + \frac{1}{x} = 10$, then the value of $x^3 + \frac{1}{x^3}$ is
 (A) 970 (B) 980 (C) 1070 (D) None of these

ASSERTION REASON QUESTION

- Q10. **Assertion:** One and only one line passes through two distinct points.
Reason: If A, B and C are three points on a line and C lies between A and B, then $AC + CB = AB$.
 (A) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (B) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

- (C) Assertion is true but Reason is false.
 (D) Assertion is false but Reason is true.

SECTION B

Section B consists of 3 questions of 2 marks each.

Q11. (a) Find the value of m so that $(2x - 1)$ be a factor of $(8x^4 + 4x^3 - 16x^2 + 10x + m)$.

OR

(b) Factorise: $2x^3 - x^2 - 13x - 6$.

Q12. Express the linear equation in two variables $\frac{x-2}{3} + \frac{5y}{2} - 2 = 0$ in standard form. Find a solution of this equation.

Q13. If $p - q = 7$ and $p^2 + q^2 = 85$, then find the value of $p^3 - q^3$.

SECTION C

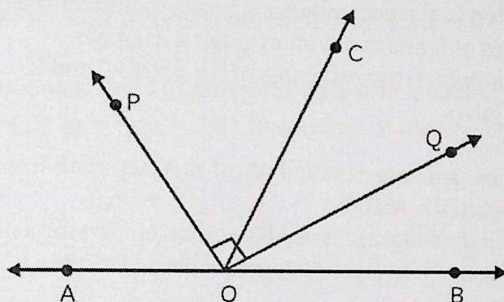
Section C consists of 2 questions of 3 marks each.

Q14. Draw the graph of the linear equation $3x + 4y = 6$. At what points, the graph cuts X and Y -axis?

Q15. (a) Prove that the sum of the angles of a triangle is 180° .

OR

(b) In the given figure, OP bisects $\angle AOC$, OQ bisects $\angle BOC$ and $OP \perp OQ$. Show that the points A, O and B are collinear.



SECTION D

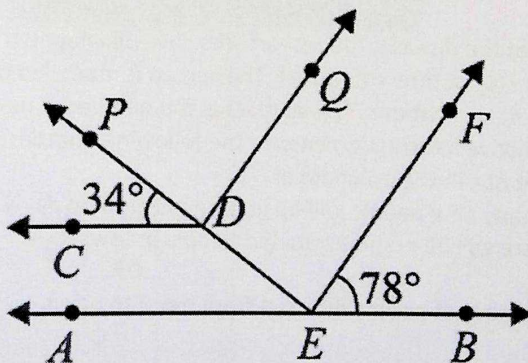
Section D consists of 2 questions of 5 marks each.

Q16. (a) If $x = \frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}-\sqrt{5}}$ and $y = \frac{\sqrt{7}-\sqrt{5}}{\sqrt{7}+\sqrt{5}}$, then find the value of $x^2 + y^2$.

OR

(b) If $\frac{9^n \times 3^2 \times (3^{-\frac{n}{2}})^{-2} - (27)^n}{3^{3m} \times 2^3} = \frac{1}{27}$, prove that $m - n = 1$

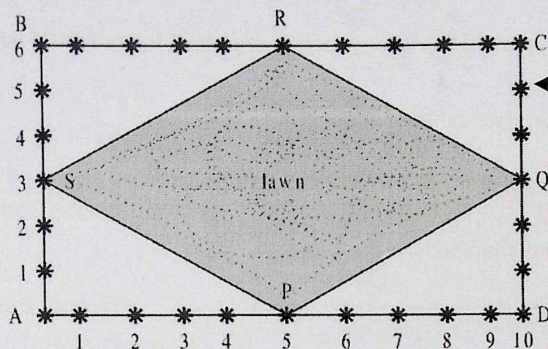
Q17. In the given figure, $EF \parallel DQ$ and $AB \parallel CD$. If $\angle FEB = 78^\circ$ and $\angle PDC = 34^\circ$ then find $\angle PDQ$, $\angle AED$ and $\angle DEF$.



SECTION E

Section E consists of 2 questions of 4 marks each.

Q18. The Class IX students of a secondary school in Krishnagar have been allotted a rectangular shaped plot of land for their gardening activity. Sapling of Gulmohar are planted on the boundary at a distance of 1 m from each other. There is a lawn PQRS in the ground as shown in below figure.



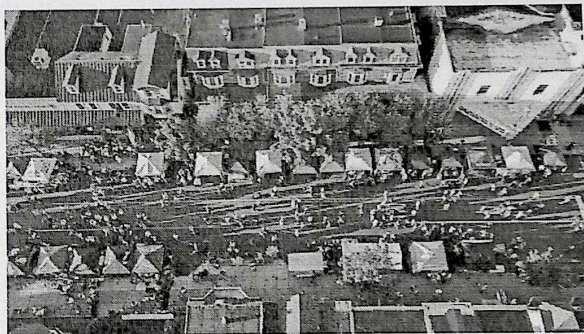
Analyse the data provided in the accompanying image to answer the following questions.

- Write the coordinates of P and Q assuming point A as origin.
- Find the difference between the ordinates of the points C and S.
- Find the side of the lawn.

OR

- If we denote Or(A) as Ordinate of A and Ab(A) as Abscissa of A, then find the value of $Or(P) + Ab(B) - Ab(R) - Or(D) + Ab(Q)$.

Q19. In a small town, a new viral disease is rapidly spreading. The local health authorities are monitoring the situation closely. On Day 0, there are 12 infected individuals in the town and the number of new infections is increasing every day.



To track the spread of the disease, the researchers have developed a mathematical model for the number of new infected individuals, $I(t)$ at time t (in days). The spread is modelled by the polynomial:

$$I(t) = 2t^3 - 5t^2 - 4t + c, \text{ where } I(t) \text{ represents the number of newly infected individuals at time } t \text{ (in days).}$$

Then based on the above information answer the following questions.

- What is the value of c in the polynomial $I(t)$?
- Calculate how many new people will be getting infected on day 4.
- At which day there will be no new infected people in town?

OR

- Find the total number of people infected from day 0 to day 3.
