

SAMPLE PAPER
TERM-I (2025-26)
CLASS-IX (MATHEMATICS)

Maximum Marks:80

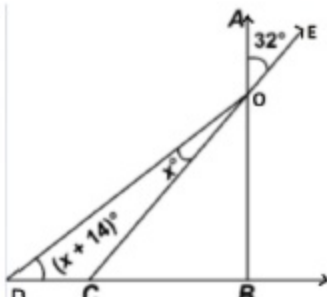
Time: 3 hours

General Instructions:

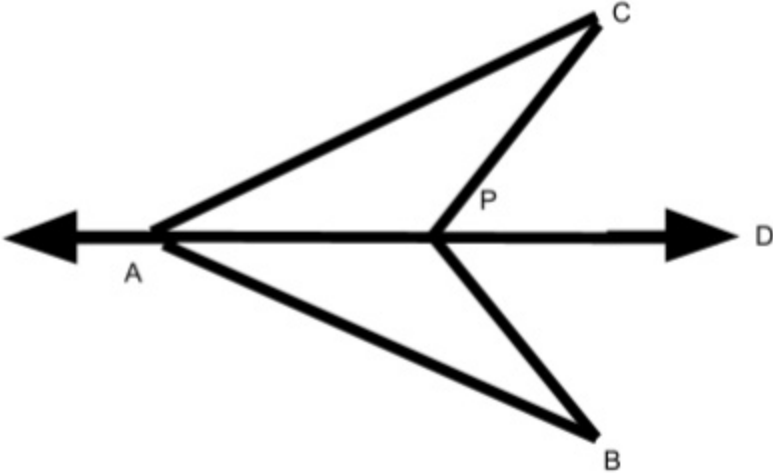
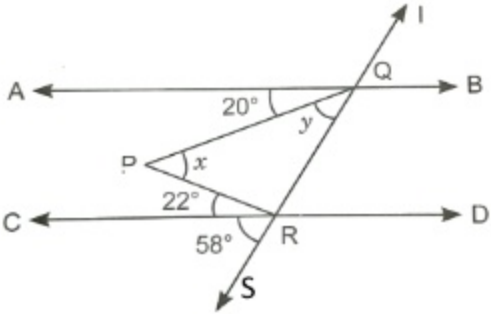
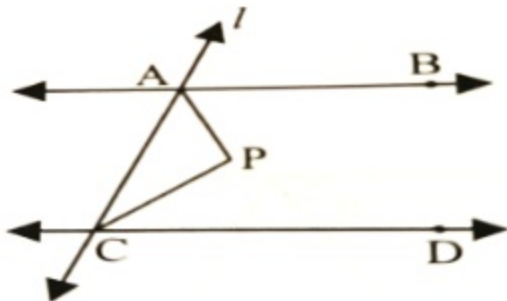
Read the following instructions carefully and follow them:

1. This question paper contains 38 questions. All Questions are compulsory.
2. This Question Paper is divided into 5 Sections A, B, C, D and E.
3. In Section A, Question numbers 1-18 are multiple choice questions (MCQs) and question no.19 and 20 are Assertion- Reason based questions of 1 mark each.
4. In Section B, Question numbers 21-25 are very short answer (VSA) type questions, carrying 02 marks each.
5. In Section C, Question numbers 26-31 are short answer (SA) type questions, carrying 03 marks each.
6. In Section D, Question numbers 32-35 are long answer (LA) type questions, carrying 05 marks each.
7. In Section E, Question numbers 36-38 are case study-based questions carrying 4 marks each with sub parts of the values of 1, 1 and 2 marks each respectively.
8. There is no overall choice. However, an internal choice in 2 questions of Section B, 2 questions of Section C and 2 questions of Section D has been provided. An internal choice has been provided in all the 2 marks questions of Section E.
9. Draw neat and clean figures wherever required. Take $\pi = 22/7$, wherever required if not stated.
10. Use of calculators is not allowed.

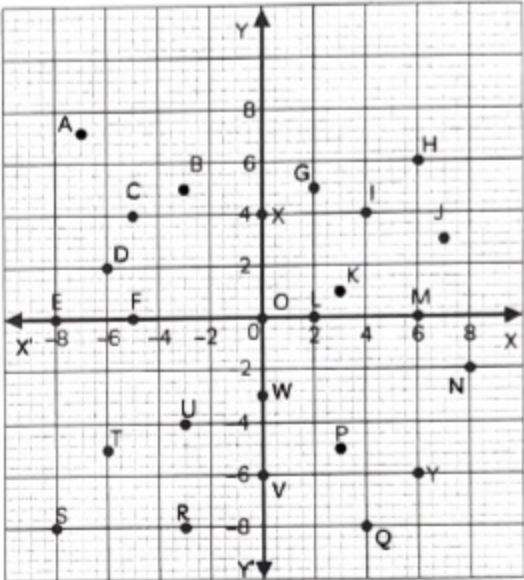
(Section – A) Section A consists of 20 questions of 1 mark each.		
Q.No.	Questions	Marks
1.	If the ordered pair $(x+3, 5) = (2, 2-y)$ then the value of xy is (A) -3 (B) 3 (C) 2 (D) -2	1
2.	The degree of the polynomial $p(x) = \sqrt{3}$ is (A) 0 (B) $\frac{1}{2}$ (C) 2 (D) 1	1

3.	The sum of $0.\overline{2}$ and $0.\overline{5}$ is (A) $\frac{10}{7}$ (B) $\frac{7}{9}$ (C) $\frac{7}{99}$ (D) $\frac{3}{10}$	1
4.	If $10^x = 64$, then $10^{\frac{x}{2}+1}$ is equal to (A) 18 (B) 42 (C) 80 (D) 81	1
5.	If $p(x) = x + 3$, then $p(x) + p(-x) =$ (A) 6 (B) $2x$ (C) 0 (D) 3	1
6.	The number of dimension/dimensions of a point is/are (A) 3 (B) 2 (C) 0 (D) 1	1
7.	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	1
8.	An isosceles right triangle has an area of 8sq.cm. The length of its hypotenuse is (A) $\sqrt{32}$ cm (B) $\sqrt{16}$ cm (C) $\sqrt{48}$ cm (D) $\sqrt{24}$ cm	1
9.	If $(x - 2)$ is a factor of the polynomial $2x^2 + kx - 15$, then the value of k is (A) 7 (B) -7 (C) $\frac{7}{2}$ (D) $-\frac{7}{2}$	1
10.	It is given that $\triangle ABC \cong \triangle FDE$ and $AB = 5$ cm, $\angle B = 40^\circ$ and $\angle A = 80^\circ$. Which of the following is true? (A) $DF = 5$ cm, $\angle F = 60^\circ$ (B) $DE = 5$ cm, $\angle D = 40^\circ$ (C) $DF = 5$ cm, $\angle E = 60^\circ$ (D) $DE = 5$ cm, $\angle D = 40^\circ$	1
11.	In figure AOB and COE are straight lines and AB is perpendicular to BC, then x is  (A) 25° (B) 22° (C) 18° (D) 32°	1
12.	Two complementary angles are such that two times the measure of one is equal to three times the measure of the other. The measure of the smaller angle is , (A) 45° (B) 36° (C) 30° (D) 72°	1
13.	If the coordinates of a point $P(x, y)$ satisfy the relation $xy > 0$, then P may lie (A) I or II quadrant (B) II or III quadrant (C) I or III quadrant (D) I or IV quadrant	1

14.	<p>In the given figure, the value of PM is</p> <p>(A) 3 cm (B) 5 cm (C) 4 cm (D) 6 cm</p>	1
15.	<p>In $\triangle ABC$ and $\triangle PQR$, $AB=AC$, $\angle C=\angle P$ and $\angle B=\angle Q$. Two triangles are</p> <p>(A) isosceles but not congruent (B) isosceles and congruent (C) congruent but isosceles (D) neither isosceles nor congruent</p>	1
16.	<p>If $(a, 4)$ lies on the graph of $3x + y = 10$, then the value of a is</p> <p>(A) 3 (B) 2 (C) 0 (D) 1</p>	1
17.	<p>The graph of the linear equation $2x - y = 4$ cuts x-axis at</p> <p>(A) (2,0) (B) (-2,0) (C) (0,-4) (D) (0,4)</p>	1
18.	<p>Which of the following is irrational ?</p> <p>(A) 0.15 (B) 0.01516 (C) $0.\overline{1516}$ (D) 0.5015001500015....</p>	1
	<p>DIRECTIONS: In the question number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option:</p> <p>(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 and 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.</p>	1
19.	<p>Assertion (A) : If every side of a triangle is doubled, then the increase in area of the triangle is 200%.</p> <p>Reason (R) : Area of the triangle $= \sqrt{s(s-a)(s-b)(s-c)}$, where a, b and c are three sides and s is the semiperimeter.</p>	1
20.	<p>Assertion (A) : If $(x+1)$ is a factor of $f(x) = x^2 + ax + 2$ then $a = 3$.</p> <p>Reason (R) : If $(x-a)$ is a factor of $p(x)$, then $p(a) = 0$.</p>	1
<p>(Section – B)</p> <p>Section B consists of 5 questions of 2 marks each.</p>		
21.	<p>Evaluate : $(256)^{0.16} \times (256)^{0.09}$</p>	2

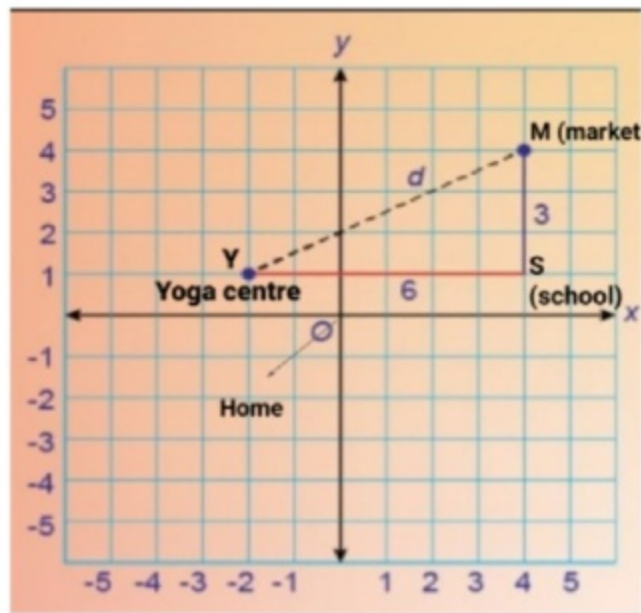
22.	<p>In the given figure, AD is bisector of $\angle BAC$ and $\angle CPD = \angle BPD$. Prove that $\triangle CAP \cong \triangle BAP$.</p> 	2
23. (A)	<p>For what value of 'a' the polynomial $2x^3 + ax^2 + 11x + a + 3$ is exactly divisible by $2x - 1$.</p> <p style="text-align: center;">OR</p> <p>(B) Factorise $x^2 - 1 - 2a - a^2$</p>	2
24.	<p>Find the coordinates of the point, where the graph of the equation $7x - 3y = 4$ cuts the X- axis and the Y- axis.</p>	2
25. (A)	<p>In the figure, find the values of x and y, if $AB \parallel CD$.</p>  <p style="text-align: center;">OR</p> <p>(B) In the given figure, $AB \parallel CD$ and a transversal l cuts AB and CD at A and C respectively. Bisectors of $\angle A$ and $\angle C$ intersect each other at P. Prove that $\angle APC$ is 90°.</p> 	2

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

26.	Locate $\sqrt{3.5}$ on the number line.	3
27.	If $x = 2 + \sqrt{3}$, find the value of $x^3 + \frac{1}{x^3}$.	3
28. (A)	Find the value of $9x^2 + 4y^2$ if $xy = 6$ and $3x + 2y = 12$. OR	3
(B)	Factorise :- $x^3 + x^2 - 4x - 4$	
29. (A)	Determine the solution of the equation $2x + 5y = 20$ whose abscissa is $\frac{5}{2}$ times its ordinate. Also, check whether $(0,0)$ is a solution of the equation. OR	3
(B)	If $x = 2k + 1$ and $y = k - 1$ is a solution of the equation $2x - 3y + 5 = 0$, find the value of k .	
30.	Based on the given graph, answer the following questions:  <p>(i) Identify any two points with a negative abscissa and a negative ordinate. (ii) Write coordinates of 4 points which will make a square.</p>	3
31.	A triangular park ABC has sides 120m, 80m and 50m. A gardener Rohit has to fence all around it and also plant grass inside. How much area does he need to plant? Find the cost of fencing it with barbed wire at the rate of ₹20 per meter leaving a space 5m wide for a gate on one side.	3
(Section - D) Section D consists of 4 questions of 5 marks each		
32.	Find a and b if polynomial $2x^3 + x^2 + ax + b$ is exactly divisible by $x^2 - 3x - 4$.	5

33. (A)	If D is the mid point of the hypotenuse AC of a right $\triangle ABC$. Prove that $BD = \frac{1}{2}AC$.	5
(B)	<p style="text-align: center;">OR</p> <p>Two sides AB, BC and median AM of one triangle ABC are respectively equal to sides PQ, QR and median PN of $\triangle PQR$. Show that</p> <p>(i) $\triangle ABM \cong \triangle PQN$ (ii) $\triangle ABC \cong \triangle PQR$</p>	
34. (A)	<p>Show that :</p> $\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2} = 5$ <p style="text-align: center;">OR</p> <p>If $a = \frac{2-\sqrt{5}}{2+\sqrt{5}}$, $b = \frac{1}{a}$ then find the value of $a^2 \cdot b^2$.</p>	5
35.	Prove that if two lines intersect, then vertically opposite angles are equal. If two lines AB and CD intersect at point O. If $\angle AOC + \angle COB + \angle BOD = 270^\circ$, find the measures of $\angle AOD$ and $\angle COB$. Give reasons.	5
	<p>(Section - E)</p> <p>Section E consists of 3 case study based questions of 4 marks each.</p>	
36. (A)	Ridhi is a class IX student residing in a town. The government has opened a new yoga center in her town for physical and mental fitness. She decided to join yoga classes. So the next day after her school she went to the market to buy yoga outfits and visited the yoga center and met the Instructor for the class schedule. After returning home, she used her concepts of Coordinate Geometry which she studied in her math class and plotted a graph by taking home as origin and marked three places on the graph sheet as per direction of movement and distance. The graph is shown below.	

Scale is one unit on both axes = 1 km



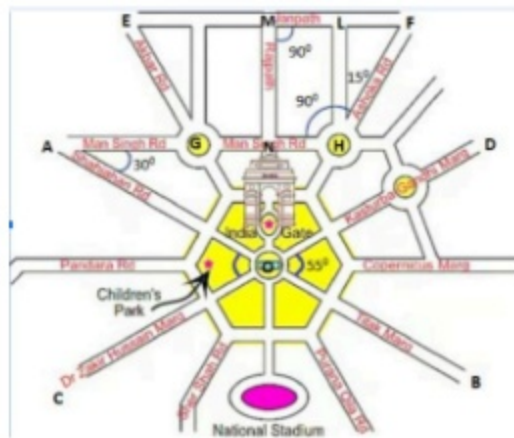
Based on the above information, answer the following questions:

- (i) Write the coordinates of the market (Point M).
- (ii) What is the distance of the Yoga center from the Y axis ?
- (iii) If three points Y , M and S make a right triangle. Write the coordinates of the vertices of the mirror image of ΔSMY with respect to the X axis.

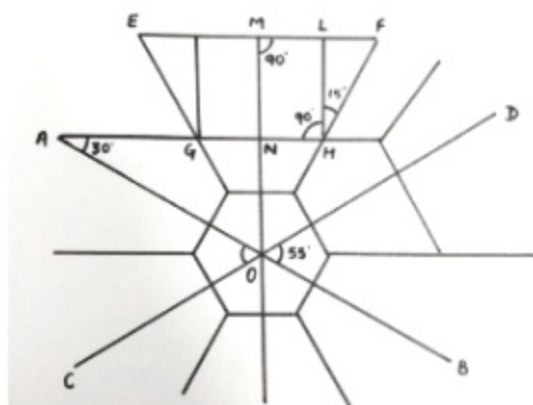
OR

- (B) Find the distance between the Yoga centre and market.

37. (A) Anshika and Seema are sisters and both went to visit India Gate. Before going, they searched the location of their destination on maps. During searching, they found on a map that Janpath and Rajpath form a right angle at their intersection point. In order to have better understanding of map they labeled ShahJahan road and Tilak marg as AB, Dr. Zakir Hussain Marg and Kasturba Gandhi marg as CD, Janpath as EF, Man Singh Road as GH, Ashoka Road as FH.



OR



Based on the above information, answer the following questions:

- (i) Find the measure of angle between Janpath and Ashoka road. 1
- (ii) What is the measure of reflex angle formed between Mansingh Road and Shah Jahan road? 1
- (iii) If AB and CD intersect at point O, find the value of angle between Dr. Zakir Hussain Marg and Tilak Marg. Is $\angle AOC = \angle BOD$? Justify. 2
- OR
- (B) If $EF \parallel GH$, find the angle between Rajpath and Mansingh road. Give reason for your answer. Also find its complement.

38.
(A)

Case (I) Deepak bought 3 notebooks and 2 pens for ₹80.

Case (II) Shivam bought 5 notebooks and 7 pens for ₹120.

Based on the above information answer the following questions:

- (i) Form the pair of linear equations in two variables from this situation by taking the cost of one notebook as ₹x and the cost of one pen as ₹y. 1
- (ii) Find the total cost Deepak needs to pay if the cost of one notebook is ₹27 and one pen is ₹15. 1
- (iii) Find two solutions for the equation formed in situation I. 2

OR

(B)

Find two solutions for the equation formed in situation II.