



INDIAN SCHOOL AL WADI AL KABIR
MID TERM EXAMINATION (2026-27)

Class: IX

Sub: MATHEMATICS

Max Marks: 80

Time: 3 hours

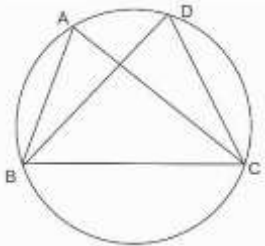
General Instructions:

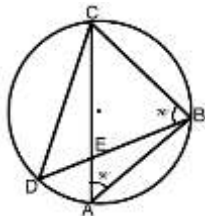
1. This question paper has 5 sections- A, B, C, D and E.
2. Section A- PART-1 (MCQ) comprises of 18 questions of 1 mark each
3. Section A- PART-2 (Assertion and Reason) comprises of 2 questions of 1 mark each.
4. Section B- (Short answer) comprises of 5 questions of 2 mark each.
5. Section C- (Long answer) comprises of 6 questions of 3 marks each.
6. Section D- (Long answer) comprises of 4 questions of 5 marks each.
7. Section E – comprises of 3 Case study-based questions of 4 marks each with sub parts of the values 1, 1 and 2 marks each respectively.
8. All Questions are compulsory.

Section A

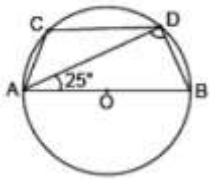
PART-1(MCQ-1 mark each)

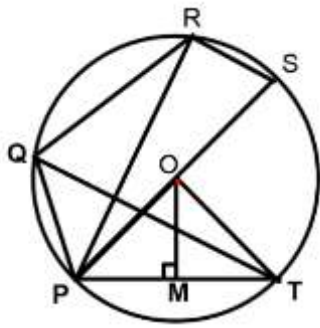
Q.1.	A chord of length 24 cm is drawn in a circle of radius 13 cm. What is the perpendicular distance of the chord from the center?							
	A	5	B	4	C	6	D	7
Q.2.	If $a + b = 10$, $ab = 24$, then the value of $a^2 + b^2$ is_____.							
	A	48	B	52	C	24	D	36
Q.3.	The distance between the points A (0,8) and B (0, -2) is:							
	A	10	B	8	C	6	D	9
Q.4.	The possible length and breadth of a rectangle is $(x + 3)$ and $(x - 5)$, then the area of the rectangle is -----sq. units.							
	A	$x^2 - 2x - 15$	B	$x^2 - 2x + 8$	C	$x^2 - 8x - 10$	D	$x^2 - 8x + 10$
Q.5.	The coordinates of a point is $(-5, 7)$. Its distance from Y-axis is: is:							
	A	2 units	B	7 units	C	5 units	D	12 units

Q. 6.	In the given figure, $\angle ABC = 69^\circ$, $\angle ACB = 31^\circ$. Then which of the following is the value of $\angle BDC$? 							
	A	100°	B	80°	C	75°	D	95°
Q. 7.	A rational number in between $\frac{-3}{7}$ and $\frac{-2}{14}$ is:							
	A	$\frac{-4}{14}$	B	$\frac{3}{14}$	C	$\frac{-1}{7}$	D	$\frac{-4}{7}$
Q.8.	Identify the number which is irrational from the following numbers:							
	A	$\sqrt{225}$	B	$8\sqrt{3 \times 3}$	C	$2\sqrt{16}$	D	$\sqrt{125}$
Q.9.	The points (-5, 2) and (2, -5) lie in the							
	A	II and III	B	III and IV	C	II and IV	D	I and IV
Q.10.	The value of $-\left(\frac{7}{9}\right) - \left(-\frac{4}{5}\right)$ is:							
	A	$-\frac{2}{45}$	B	$-\frac{11}{45}$	C	$-\frac{1}{45}$	D	$\frac{1}{45}$
Q.11.	If $(m - 2n)^3 = m^3 - 8n^3 + \dots + 12mn^2$, the missing term is:							
	A	$6m^2n$	B	$-6m^2n$	C	$6mn^2$	D	$-6mn^2$
Q.12.	The value of $(-8) \times (-25) \times (-15)$ is:							
	A	-2000	B	-300	C	-3000	D	2000
Q.13.	In a cyclic quadrilateral ABCD, opposite angles A and C are measured as $\angle A = (4x + 15)^\circ$ and $C = (x + 30)^\circ$. Find the value of $\angle A$.							
	A	133°	B	57°	C	132°	D	123°
Q.14.	The decimal expansion of rational number $\frac{19}{125}$ is:							
	A	1.52	B	0.00152	C	0.152	D	0.0152

Q.15.	In the figure, $\angle DBC = 70^\circ$ and $\angle BAC = 50^\circ$. Find the measure of $\angle BCD$.							
	A	90°	B	70°	C	60°	D	50°
Q.16.	The degree of the polynomial $9m^{10} + 15m^2 - 0m^{12} + 2m - 1$ is:							
	A	10	B	2	C	12	D	9
Q.17.	The factorisation of $36x^2 - 121$ is:							
	A	$(3x + 11)(3x - 11)$	B	$(6x + 11)(6x - 11)$	C	$(6x + 11)(6x + 11)$	D	$(6x - 11)(6x - 11)$
Q.18.	The slope of the linear equation: $3y = x + 3$ is:							
	A	3	B	1	C	$\frac{1}{3}$	D	-3
	Section A PART-2 (ASSERTION & REASONING-1 mark each)							
	DIRECTION: In the question number 19 and 20, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct option. (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.							
Q.19.	Statement A (Assertion): The value of $x^2 - 2x + 1$ when $x = 1$ is 0. Statement R (Reason): A numerical coefficient is defined as a fixed number that is multiplied to a variable.							
	A	a	B	b	C	c	D	d
Q.20.	Statement A (Assertion): If AOB is a diameter of a circle and C is a point on the circle, then $AC^2 + BC^2 = AB^2$. Statement R (Reason): Angle in a semi-circle is a right angle.							
	A	a	B	b	C	c	D	d

	Section B (S.A-2 mark each)
Q.21.	a) Show that $2.35\bar{9}$ can be expressed in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$. OR b) A student has ₹750 in her savings bank account. She receives ₹200 every month as pocket money. i) How much money will she have at the end of second month? ii) Find a linear expression to represent the amount she will have in the nth month.
Q.22.	Expand $(a + 2b - 3c)^2$.
Q.23.	Represent the rational numbers $-\frac{3}{4}$, 0, $2\frac{3}{5}$ on a same number line
Q.24.	a) Factorise completely: $x^4 - 81$. OR b) If $x = -2$, then find the value of the polynomial $f(x) = 2x^2 - 3x + 7$.
Q.25.	The present age of Rohan's father is three times Rohan's present age. After 4 years, the sum of their ages will be 56 years. Find their present ages.
	Section- C (S.A-3 mark each)
Q.26.	a) Prove that $\sqrt{7}$ is irrational. OR b) Priya ran $2\frac{2}{3}$ km on Saturday and $3\frac{3}{4}$ km on Sunday. How many kilometers did she run in total over the weekend?
Q.27.	Factorise the given expression: $12x^2 - 7x - 10$.
Q.28.	Represent $\sqrt{3}$ on number line.

Q.29.	a) The length of a rectangle is 5 cm more than twice its width. If the perimeter of the rectangle is 34 cm, find the length and width of the rectangle. OR b) Anita has 4 times as many ₹5 coins as she has ₹2 coins. If the total value of all the coins is ₹110, how many coins of each type does she have?
Q.30.	a) Draw ΔPQR with $PQ = 6\text{cm}$, $\angle QPR = 110^\circ$, and $PR = 4.5\text{cm}$. Construct its circumcircle and state whether its center lies inside, on, or outside the triangle. OR b) ΔABC with $AB = 5\text{cm}$, $\angle A = 65^\circ$, and $\angle B = 55^\circ$. Draw its incircle and measure the inradius.
Q.31.	In the given figure, AB is diameter of the circle with centre O and $CD \parallel AB$. If $\angle DAB = 25^\circ$, then find the measure of $\angle CAD$. 
	Section- D (L.A-5 mark each)
Q.32	The sum of three numbers is 12 and their product is 16 . The sum of their squares is 56 . Find the sum of the cubes of these three numbers.
Q.33	Show that the points (0,2), (3,5), (6,2), (3,-1). Name the type of polygon obtained on joining the points in order.
Q.34.	Draw the graph of the following equations and identify their slopes and y-intercepts. (i) $y = -2x + 4$ (ii) $2y = 3x + 1$.
Q.35.	a) Two parallel chords of a circle have lengths 10 cm and 24 cm. They are on the same side of the centre. If the radius of the circle is 13 cm, find the distance between the two chords. OR b) Two parallel chords of a circle have lengths 10 cm and 24 cm. They are on opposite sides of the centre. If the radius of the circle is 13 cm, find the distance between the two chords.

	Section- E(CASE STUDY BASED QUESTIONS-4marks each)
Q.36.	CASE STUDY- I An urban designer is planning a circular public park with centre O. The perimeter of the park is bounded by a circular fence, and the main entrance walkway is a straight pathway PS of length 26 metres passing directly through the central fountain O. There are five major rest stations located on the boundary of the park: P, Q, R, S and T. Connecting pathways have been paved between stations $P \rightarrow Q$, $Q \rightarrow T$, $P \rightarrow R$, and $R \rightarrow S$ to help visitors navigate. The central angle between the pathways from the fountain O to rest stations P and T is 70° ($\angle POT = 70^\circ$) and the diameter of the circle is 26m.  Based on above information answer the following questions: (i) What is the measure of $\angle PQT$? Give reasons. (1m) (ii) What is the measure of $\angle PRS$? Give reasons. (1m) (iii) If $PT = 10\text{cm}$, then find the distance of the chord from the center O. (2m) OR (iv) Find the measurement of $\angle OPT$. (2m)
Q.37.	CASE STUDY- II Two friends, Seema and Aditya, work in the same office in Delhi. For the Christmas vacation, they both decided to travel to their home towns, represented by Town A and Town B respectively in the figure shown. Town A and Town B are connected by trains departing from the same station, station C, in Delhi. Two friends, Seema and Aditya, work in the same central corporate office in Delhi. For the winter holidays, they both decide to travel to their respective hometowns, represented as Town A and Town B on a regional grid map. Both towns are connected by passenger train lines starting from the main central station in Delhi, Station C. On the railway grid map:  - The central station C is located exactly at the origin: (0, 0). - Seema's hometown Town A is plotted at the coordinate: A (-6, -8). - Aditya's hometown Town B is plotted at the coordinate: B (5, 4).

	Based on above information answer the following questions: i) Find the distance from central station to town A. (1m) ii) Write the quadrants which located town A and town B. (1m) iii) Find a spot which is exactly in the middle of town A and town B and find the coordinates of that point. (2m) OR iv) Find the distance between town A and town B .
Q.38.	CASE STUDY- III Mrs. Meera lives in a remote village where there is no nearby school or proper educational facility. Fortunately, the village has access to a good internet connection. Being passionate about learning, she decided to continue her studies through online classes. One day, while attending an online mathematics lesson, she was learning about the Number System. Her teacher explained the concepts of rational numbers, irrational numbers, and operations on rational numbers. She was given some numbers and activities to practise these concepts. Based on the information, answer the following questions. (i) Find any two irrational numbers between 0.325 and 0.435 (1m) (ii) Find the value of : $\frac{-15}{12} \div \left(\frac{-39}{10}\right)$ (1m) (iii) (a) Write any four rational numbers between $\frac{2}{3}$ and $\frac{3}{4}$. (2m) OR (iv) (b) Find the sum of : $\frac{-4}{7} - \left(\frac{6}{5}\right)$ (2m)



ANSWERS

Q.1	A	Q.2	B	Q.3	A	Q.4	A
Q.5	C	Q.6	B	Q.7	A	Q.8	D
Q.9	C	Q.10	D	Q.11	B	Q.12	C
Q.13	D	Q.14	C	Q.15	C	Q. 16	A
Q.17	B	Q.18	C	Q.19	B	Q.20	A
Q.21	a) $\begin{matrix} 59 & 2124 \\ 25 & 900 \end{matrix} \text{ (or)}$ b) i) ₹1150 ii) $750 + 200n$	Q.22	$a^2 + 4b^2 + 9c^2 + 4ab - 12bc - 6ac$	Q.23	Draw no.line	Q.24	a) $(x-3)(x+3)(x^2+9)$ b) 21
Q.25	Rohan: 12 yrs, Father: 36yrs	Q.26	a) proof b) $\frac{77}{12} = 6\frac{5}{12}$	Q.27	$(8x+2)(4x-6)$	Q.28	No.line
Q.29	a) Width: 4 cm Length: 13 cm b) ₹ 5 coins - 20 ₹ 2 coins - 5	Q.30	Construction	Q.31	40°	Q.32	192

Q.33	Square	Q.34	graph	Q.35	a) 7cm b) 17cm	Q.36	i) $\angle PQT = 35^\circ$ ii) $\angle PRS = 90^\circ$ iii) 12m iv) $\angle OPT = 55^\circ$
Q.37	i) 10 units ii) A-III B-I iii) $\left(-\frac{1}{2}, -2\right)$ iv) $\sqrt{265}$	Q.38	i) 0.33010010 001... and 0.410100100 01... ii) $\frac{25}{78}$ iii) any four or iv) $\frac{-62}{35}$				