



INDIAN SCHOOL AL WADI AL KABIR
Final Examination Revision Paper (2024-25)

Class: IX

Sub: MATHEMATICS

Max Marks: 80

Date: 09/02/2025

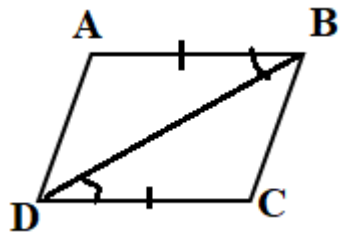
Time: 3 hours

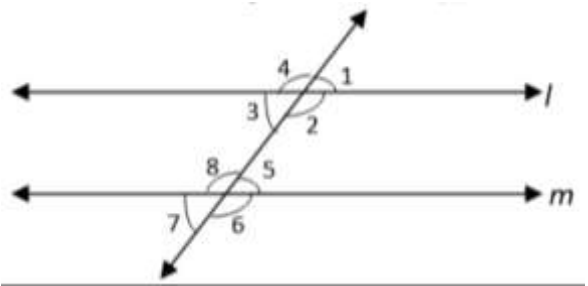
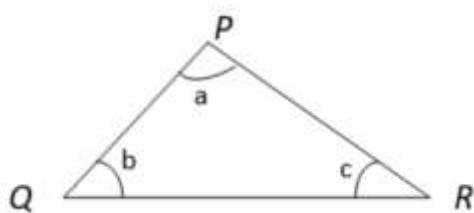
General Instructions:

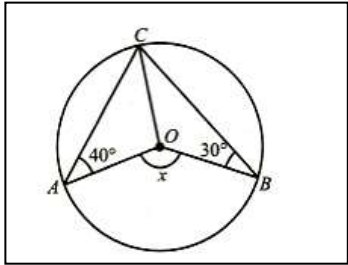
1. This question paper has 5 sections- A - E.
2. Section A- (MCQ) comprises of 20 questions of 1 mark each.
3. Section B comprises of 5 questions of 2 mark each.
4. Section C comprises of 6 questions of 3 marks each.
5. Section D comprises of 4 questions of 5 marks each.
6. Section E comprises of 3 Case based integrated units of assessment (4 marks each) with sub-parts of the values 2, 1 and 1 marks each respectively.
7. All questions are compulsory; however, an internal choice has been provided for certain questions.
8. Draw neat diagrams wherever required. Take $\pi = \frac{22}{7}$ wherever required, if not stated.

Section A

PART-1(MCQ-1 mark each)

Q.1.	If the area of an equilateral triangle is $81\sqrt{3} \text{ cm}^2$. The perimeter is:							
	A	27cm	B	9cm	C	54cm	D	81cm
Q.2.	If the angle exceeds its complement by 20° , then the measurement of the smallest angle is:							
	A	30°	B	35°	C	55°	D	90°
Q. 3.	In the figure, $AB=DC$, $\angle ABD = \angle CDB$, which congruence rule would you apply to prove $\triangle ABD \cong \triangle CDB$? 							
	A	RHS	B	SSS	C	ASA	D	SAS
Q. 4.	$x = 5$, $y = 2$ is a solution of the linear equation:							
	A	$x + 2y = 7$	B	$5x + 2y = 7$	C	$x + y = 7$	D	$5x + y = 7$

Q. 5.	According to Euclid's definition, the number of dimensions, a solid shape has							
	A	3	B	1	C	2	D	0
Q. 6.	If $l \parallel m$ which of the following is not correct 							
	A	$\angle 1 = \angle 5$	B	$\angle 1 = \angle 3$	C	$\angle 1 = \angle 2$	D	$\angle 2 = \angle 6$
Q.7.	The angles ($\angle P$, $\angle Q$, $\angle R$) of the triangle ΔPQR if $a + b = 120^\circ$ and $a - c = 30^\circ$ are 							
	A	$120^\circ, 30^\circ, 30^\circ$	B	$90^\circ, 45^\circ, 45^\circ$	C	$90^\circ, 30^\circ, 60^\circ$	D	$90^\circ, 45^\circ, 80^\circ$
Q.8.	If $p(y) = y^3 + y^2 + \sqrt{2}y + \sqrt{2}$, the value of $p(-\sqrt{2})$ is:							
	A	$-\sqrt{2}$	B	$\sqrt{2}$	C	$2\sqrt{2}$	D	$-2\sqrt{2}$
Q.9.	The coordinates of the point on Y -axis, in the negative direction of the y axis is							
	A	(2,0)	B	(-2,0)	C	(0,- 4)	D	(-3,-4)
Q.10	In a triangle PQR if $\angle QPR = 80^\circ$ and $PQ = PR$, then $\angle R$ and $\angle Q$ are							
	A	$50^\circ, 50^\circ$	B	$80^\circ, 80^\circ$	C	$80^\circ, 70^\circ$	D	$70^\circ, 80^\circ$
Q.11.	Value of $(999)^2 - (1)^2$							
	A	998000	B	998998	C	999	D	999989
Q.12.	If (3, 2) is a solution of the equation $3x - py - 7 = 0$, then the value of p is:							
	A	-1	B	1	C	$-\frac{13}{3}$	D	2

Q.13.	In a quadrilateral three angles are in the ratio 3:3:1 and one of the angles is 80° , then the three angles are:							
	A	$120^\circ, 120^\circ, 40^\circ$	B	$100^\circ, 100^\circ, 80^\circ$	C	$110^\circ, 110^\circ, 60^\circ$	D	$90^\circ, 90^\circ, 30^\circ$
Q.14.	A diagonal of a rectangle is inclined to one side of the rectangle at 35° . The acute angle between the diagonals is							
	A	30°	B	35°	C	45°	D	70°
Q.15.	The factors of $12x^2 - 7x + 1$ are:							
	A	$3x - 1, 4x - 1$	B	$3x-1, 4x$	C	$3x - 1, 4x + 1$	D	$3x + 1, 4x - 1$
Q.16.	In the given figure, O is the centre of the circle. The value of x is:							
								
Q.17.	A	140°	B	70°	C	220°	D	210°
	The radius of a sphere is $2r$, then its volume will be							
Q.18.	A	$\frac{4}{3}\pi r^3$	B	$4\pi r^3$	C	$\frac{8}{3}\pi r^3$	D	$\frac{32}{3}\pi r^3$
	The value of $125^{\frac{-1}{3}}$ is:							
Q.19.	A	$\frac{1}{5}$	B	$\frac{1}{25}$	C	$\frac{1}{15}$	D	$\frac{1}{125}$
	DIRECTION: In each of the following questions, a statement of Assertion is given followed by a corresponding statement of Reason just below it. Choose the correct statement from the options as: 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.							
Q.20.	Assertion: If $(x+1)$ is a factor of $f(x) = x^2 + ax + 2$, then $a = -3$.							
	Reason: If $(x-a)$ is a factor of $p(x)$, if $p(a) = 0$.							
Q.20.	Assertion: A rational number lying between two rational numbers x and y is $\frac{(x+y)}{2}$.							
	Reason: There is only one rational number lying between any two rational numbers.							

Section B (2 mark each)

Q.21. Find the value of c if $x=-3$ and $y=1$ is the solution of $3x + 2y = c$

Q.22. Find the value of $x^3 + y^3 + 15xy - 125$ if $x + y = 5$.

Q.23. Find the area of a triangle, two sides of which are 8 cm and 11 cm and the perimeter is 32 cm

Q.24. The surface area of a sphere of radius 5 cm is five times the area of the curved surface of a cone of radius 4 cm. Find the height and the volume of the cone.

OR

The sides of a triangular field are 33 m, 44 m and 55 m. Find the cost of levelling the field at the rate of ₹ 200 per m^2 .

Q.25. Find two irrational numbers between $\frac{5}{7}$ and $\frac{9}{11}$

OR

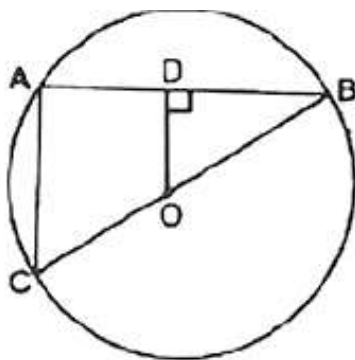
If $\frac{3}{\sqrt{3}+1} + \frac{5}{\sqrt{3}-1} = a + b\sqrt{3}$, find a and b .

Section C (3 mark each)

Q.26. Prove that equal chords of a circle subtend equal angles at the centre.

OR

In the figure, OD is perpendicular to the chord AB of a circle with centre O . If BC is a diameter, show that $AC \parallel OD$ and $AC = 2OD$.



Q.27.	The height of a cone is 16cm and the base radius is 12cm. Find curved surface area and the volume of cone. (Use $\pi = 3.14$)					
Q.28.	Using factor theorem, factorize: $x^3 - 8x^2 + 5x + 14$ OR If $(3x - 1)^3 = 6a_3x^3 + a_2x^2 + a_1x + a_0$ then find $a_3 + a_2 + a_1 + a_0$					
Q.29.	Prove that an equilateral triangle can be constructed on any given line segment.					
Q.30.	Find the area of an isosceles triangle, each of whose equal sides is 13 cm and whose base is 24 cm. Also find its altitude corresponding to unequal side.					
Q.31.	Draw the quadrilateral with vertices $(-4, 4)$, $(-6, 0)$, $(-4, -4)$, $(-2, 0)$. Name the type of quadrilateral and find its area.					
Section D(5 mark each)						
Q.32	Draw a histogram for the marks of students given below:					
	Marks	0-10	10-30	30-45	45-50	50-60
	No. of students	8	32	18	10	6
Q.33	A dome of a building is in the form of a hemisphere. From inside, it was white-washed at the cost of ₹ 498.96. If the cost of white-washing is ₹ 2 per square meter, find the (i) Inner surface area of the dome. (ii) Volume of air inside the dome.					
Q.34	(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 (b) Prove that the quadrilateral formed by the internal angle bisectors of any quadrilateral is cyclic.					
Q.35	(a) Simplify by rationalising the denominator: $\frac{2\sqrt{6}}{\sqrt{2}+\sqrt{3}} + \frac{6\sqrt{2}}{\sqrt{6}+\sqrt{3}} - \frac{8\sqrt{3}}{\sqrt{6}+\sqrt{2}}$ OR (b) Prove that $\frac{1}{3+\sqrt{8}} + \frac{1}{\sqrt{8}+\sqrt{7}} + \frac{1}{\sqrt{7}+\sqrt{6}} + \frac{1}{\sqrt{6}+\sqrt{5}} + \frac{1}{\sqrt{5}+2} = 1$.					

Section E(CASE STUDY BASED QUESTIONS - 4MARKS EACH)

Q.36. During vacation two friends decided to visit Shimla. Due to peak days in Shimla they did not get any rooms to stay. So, they thought to set up a tent in a park. They made a tent in the shape of cone whose diameter is 140 cm and height is 240 cm. On the basis of above information solve the following questions.

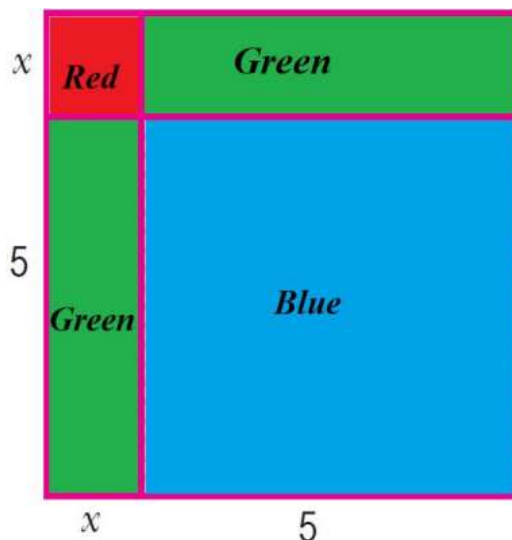
- (i) Find the slant height of the tent. (1)
- (ii) Find the base area covered by the tent. (1)
- (iii) (a) Find the volume of air can be occupied inside the tent.

OR

- (b) Find the area of canvas required to make the tent. (2)



Q.37. CASE STUDY BASED-II
Mahesh formed a square using four pieces of origami, as shown in the figure.



On the basis of the above information given in the figure, answer the following questions.

- (i) Write down the trinomial which describes the area of the given square. (1)
- (ii) If area of the square is given by the polynomial $x^2 - 10x + 25$ then find the side of the square. (1)
- (iii) a) If $p(y) = y^2 - 2y + 1$ then find the value of $p(1) + p(-2) + p(3)$ (2)

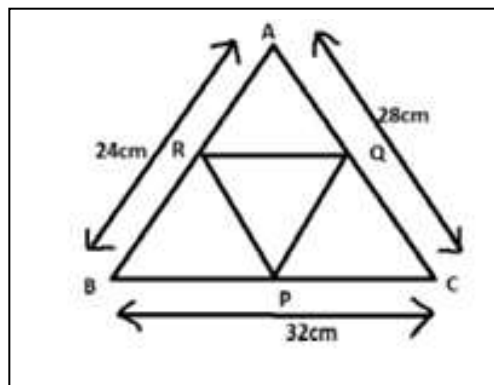
OR

- b) If $x + y = 9$ and $xy = 20$ then find the value of $x^3 + y^3$

Q.38.

CASE STUDY BASED-III

To improve the practical knowledge and awareness about social life directorate of education announces a visit in a Kendriya Vidyalaya. Girls are asked to prepare a rangoli in triangular shape as shown in figure.



Dimension of rangoli ($\triangle ABC$) are 24cm, 32cm and 28cm. Garland is to be placed along the side of $\triangle PQR$, which is formed by joining the mid-points of sides of $\triangle ABC$.

Answer the following questions based on the above information.

- (i) Find the length of RQ and QP.
- (ii) Find the length of the garland.
- (iii)(a) Name the type of quadrilateral formed by joining B, P, Q and R. Justify your answer.

OR

- (b) Show that $\triangle ABC$ is divided into 4 congruent triangles by joining P, Q and R.

ANSWER KEY

1.	C	2.	B	3.	D	4.	C
5.	A	6.	C	7.	C	8.	A
9.	C	10.	A	11.	A	12.	B
13.	A	14.	D	15.	A	16.	A
17.	D	18.	A	19.	d	20.	c
21.	$c = -7$	22.	0	23.	$8\sqrt{30} \text{ cm}^2$	24.	$3,50.29 \text{ cm}^3$ (or) ₹145200
25.	$a = 1; b = 4$	27.	753.6 cm^2 2411.52 cm^3	28.	$(x+1)(x-2)(x-7)$ (or) $\frac{-29}{2}$	30.	60 cm^2 , 5 cm
31.	Rhombus 16 sq. units	33.	(i) 249.48 m^2 (ii) 523.908 m^3	35.	a) 0	36.	(i) 250 cm (ii) 15400 cm^2 (iii) (a) 1232000 cm^3 OR (b) 55000 cm^2
37.	i) $x^2 + 10x + 25$ ii) (x-5) units iii) a) 13 OR b) 189	38.	(i) 16cm and 12cm (ii) 42 cm (iii) a) Parallelogram				