INDIAN SCHOOL AL WADI AL KABIR

Practice Question Paper (2023-24)

Class: IX Sub: MATHEMATICS Max Marks: 80

General Instructions:

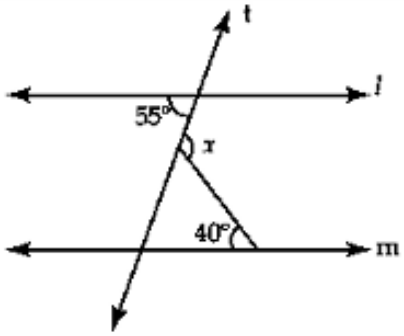
1. This question paper has 5 sections- A, B, C, D and E.
2. Section A- (MCQ) comprises of 18 questions of 1 mark each and 2 Assertion Reasoning questions of 1 mark each.
3. Section B- (Short answer) comprises of 5 questions of 2mark each.
4. Section C- (Long answer) comprises of 6 questions of 3 marks each.
5. Section D- (Long answer) comprises of 4 questions of 5 marks each.
6. 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.
7. All Questions are compulsory. However, an internal choice in 2 Qs of 2 marks, 2 Qs of 3 marks and 2 Questions of 5 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E.

Section A PART-1(MCQ-1 mark each)

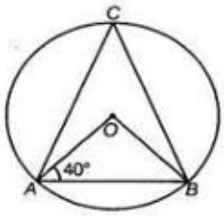
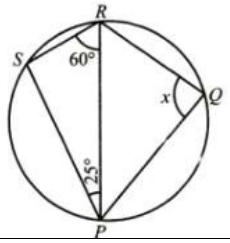
Q.1. The value of $\frac{64^{\frac{3}{4}}}{64^{\frac{-1}{4}}}$ is

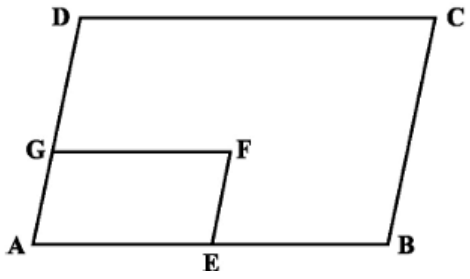
	A	16	**B**	32	**C**	64	**D**	8

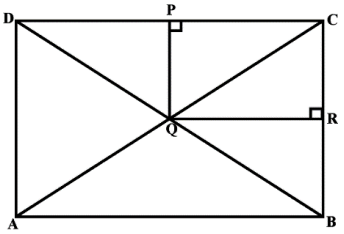
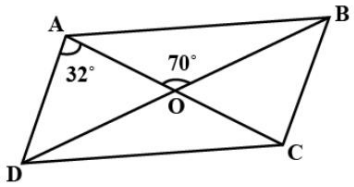
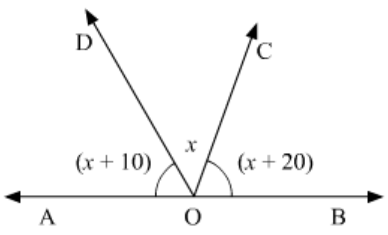
Q.2. In the given figure if l ∥ m, then the value of x is:

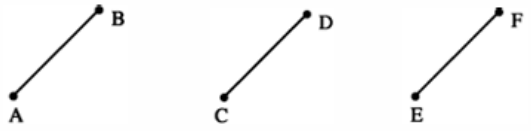
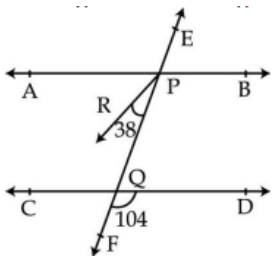
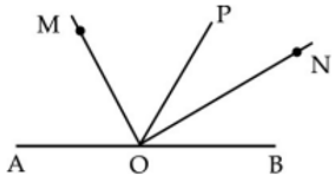
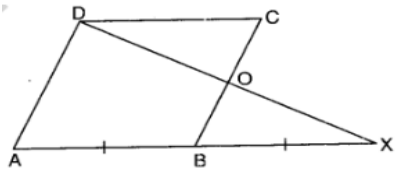


	A	35°	**B**	40°	**C**	85°	**D**	95°

Q. 3.	Find the area of an equilateral triangle of side $6\sqrt{3}\ m$.							
	A	$72\sqrt{3}\ m^2$	**B**	$27\sqrt{3}\ m^2$	**C**	$36\sqrt{3}\ m^2$	**D**	$63\sqrt{3}\ m^2$
Q. 4.	Taking $\sqrt{2}$=1.414 and π = 3.141, evaluate $\frac{1}{\sqrt{2}} + \pi$							
	A	4.848	**B**	4.555	**C**	3.848	**D**	3.555
Q. 5.	Graph of x = -7 is a line							
	A	Parallel to y-axis	**B**	Parallel to x-axis	**C**	Passes through the origin	**D**	None of these
Q. 6.	Area of the triangle whose two sides are 8 m,11 m respectively and perimeter are 32 m, is							
	A	$8\sqrt{10}\ m^2$	**B**	$8\sqrt{5}\ m^2$	**C**	$8\sqrt{15}\ m^2$	**D**	$8\sqrt{30}\ m^2$
Q. 7.	According to Euclid's definition, the ends of a line are							
	A	breadthless	**B**	points	**C**	lengthless	**D**	parallel
Q. 8.	In the figure, if ∠OAB = 40°, then what is the measure of ∠ACB? 							
	A	50°	**B**	95°	**C**	100°	**D**	80°
Q. 9.	On plotting the points O (0, 0), A (4, 0), B (4, 4), C (0, 4) and joining OA, AB, BC and CO which of the following figure is obtained?							
	A	Square	**B**	Rectangle	**C**	Trapezium	**D**	Rhombus
Q.10.	In the given figure, PQRS is a cyclic quadrilateral. If ∠SPR = 25° and ∠PRS = 60°, then the value of x is: 							
	A	105	**B**	85	**C**	95	**D**	115

<table>
<tr><td>Q.11.</td><td colspan="8">Evaluate: $(\sqrt{5}+\sqrt{2})^2+(\sqrt{8}-\sqrt{5})^2$</td></tr>
<tr><td></td><td>A</td><td>$2\sqrt{10}-20$</td><td>B</td><td>-20 - $2\sqrt{10}$</td><td>C</td><td>20 - $2\sqrt{10}$</td><td>D</td><td>20 + $2\sqrt{10}$</td></tr>
<tr><td>Q.12.</td><td colspan="8">In which quadrant will the point lie if the ordinate is 2 and abscissa is -3.</td></tr>
<tr><td></td><td>A</td><td>I</td><td>B</td><td>II</td><td>C</td><td>III</td><td>D</td><td>IV</td></tr>
<tr><td>Q.13.</td><td colspan="8">x = 5, y = 2 is a solution of the linear equation:</td></tr>
<tr><td></td><td>A</td><td>x + 2y = 7</td><td>B</td><td>5x + 2y = 7</td><td>C</td><td>x + y = 7</td><td>D</td><td>5x + y = 7</td></tr>
<tr><td>Q.14.</td><td colspan="8">If -4 is the zero of the polynomial p(x) = x^2 + 11x + k, then value of k is</td></tr>
<tr><td></td><td>A</td><td>40</td><td>B</td><td>-28</td><td>C</td><td>28</td><td>D</td><td>5</td></tr>
<tr><td>Q.15.</td><td colspan="8">To draw a histogram to represent the following frequency distribution, the adjusted frequency for the class interval 25-45 is:
<table>
<tr><td>Class Interval</td><td>5-10</td><td>10-15</td><td>15-25</td><td>25-45</td><td>45-75</td></tr>
<tr><td>Frequency</td><td>6</td><td>12</td><td>10</td><td>8</td><td>15</td></tr>
</table></td></tr>
<tr><td></td><td>A</td><td>8</td><td>B</td><td>4</td><td>C</td><td>2</td><td>D</td><td>1</td></tr>
<tr><td>Q.16.</td><td colspan="8">The volume of a cone is 1570 cm^3. If it is 15 cm high then its base area is (use $\pi = 3.14$)</td></tr>
<tr><td></td><td>A</td><td>415 cm^2</td><td>B</td><td>413 cm^2</td><td>C</td><td>314 cm^2</td><td>D</td><td>514 cm^2</td></tr>
<tr><td>Q.17.</td><td colspan="8">$\Delta ABC \cong \Delta FDE$ in which AB = 6 cm $\angle B = 40°$, $\angle A = 80°$ and FD = 6 cm, then $\angle E$ is</td></tr>
<tr><td></td><td>A</td><td>50°</td><td>B</td><td>80°</td><td>C</td><td>40°</td><td>D</td><td>60°</td></tr>
<tr><td>Q.18.</td><td colspan="8">In the given figure, ABCD and AEFG are two parallelograms. If $\angle C = 55°$, determine $\angle E$.

</td></tr>
<tr><td></td><td>A</td><td>125°</td><td>B</td><td>75°</td><td>C</td><td>55°</td><td>D</td><td>105°</td></tr>
</table>

	ASSERTION AND REASONING (1 mark each)
	DIRECTION: 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	Assertion(A): ABCD and PQRC are rectangles and Q is a midpoint of AC. Then DP = PC. Reason(R): The line segment joining the midpoint of any two sides of a triangle is parallel to the third side and equal to half of it. 
Q.20	Assertion: If a ball is in the shape of a sphere has a surface area of 221.76cm^2,then it's diameter is 8.4 cm Reason: If the radius of the sphere be r then the surface area, S=4πr^2.
	Section B (S.A. -2 mark each)
Q.21.	The diagonals AC and BD of parallelogram ABCD intersect at the point O. if ∠DAC = 32° and ∠AOB = 70°, then what is the measure of ∠DBC? 
Q.22.	In the given figure, find x. Also find ∠BOC, ∠COD and ∠AOD. 

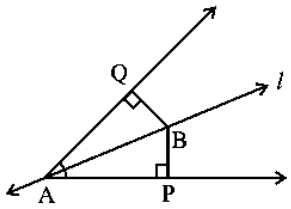
Q.23.	Find any two rational numbers between $\frac{3}{11}$ and $\frac{4}{11}$. Or Simplify: $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$.
Q.24.	In the given figure, if AB = CD and CD = EF, is AB = EF? State which axiom is used here.  Or Write any two Euclid's postulates.
Q.25.	A chord 12cm long is 8 cm away from the centre of the circle. What is the length of a chord which is 6 cm away from the centre?
	Section C (S.A. - 3 mark each)
Q.26.	In the figure PR is the angle bisector of ∠APQ. Prove that AB ‖ CD.  Or In the given figure AOB is a line. OM bisects ∠AOP and ON bisects ∠BOP. Prove that ∠MON = 90°. 
Q.27.	ABCD is a parallelogram and AB is produced to X such that AB = BX as shown in the figure. Show that DX and BC bisect each other at O. 

Q.28.

Prove that angles opposite to equal sides of an isosceles triangle are equal.

Or

Line l is the bisector of an angle ∠ A and B is any point on line l. BP and BQ are perpendiculars from B to the arms of ∠ A. Show that:



(i) Δ APB ≅ Δ AQB

(ii) BP = BQ or B is equidistant from the arms of ∠ A

Q.29.

(i) Write the co-ordinates of a point below the x-axis and on the y-axis at a distance of 8 units.

(ii) right of origin and on the x-axis at the distance of 2 units.

(iii) Find the value of x and y, if (x + 4, 5) = (5, y)

Q.30.

Find the value of a and b if $a + b\sqrt{15} = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$.

Q.31.

Find the value of k (k ≠ 0) if (x – 3) is a factor of $k^2x^3 - kx^2 + 3kx - k$.

Section D (L.A.-5 mark each)

Q. 32.

Factorize: $2x^3 - 3x^2 - 17x + 30$

Q. 33.

The following table shows the distribution of students of sections A and B of a class according to t he marks obtained by them:

Section A		Section B	
Marks	Frequency	Marks	Frequency
0 – 15	5	0 – 15	3
15 – 30	12	15 – 30	16
30 – 45	28	30 – 45	25
45 – 60	30	45 – 60	27
60 – 75	35	60 – 75	40
75 – 90	13	75 – 90	10

Represent the marks of the students of both the sections on the same graph by two frequency polygons.

OR

	Following is the frequency distribution of the total marks obtained by the students of all sections of a class in an examination: Marks: 100 - 150 | 150 - 200 | 200 - 300 | 300 - 500 | 500 - 800 Number of students: 60 | 100 | 100 | 80 | 180 Draw a histogram to represent the information given above.
Q.34.	In a class, number of is x and that of the boys is y. Also, the number of girls is 10 more than the number of boys. Write the given data in the form of a linear equation in two variables. Also, represent it graphically. Find graphically the number of girls, if the number of boys is 20.
Q.35.	The volume of two spheres are in the ratio 64:27. Find their radii, if the sum of their radii is 21 cm. Or A corn cob shaped somewhat like a cone has the radius of its broadest end as 2.1 cm and length as 20 cm. if each $1cm^2$ of the surface of the cob carries an average of four grains, find how many grains you would find on the entire cob?
	Section E (CASE STUDY BASED QUESTIONS- 4 mark each)
Q.36.	CASE STUDY-I Nick and Brijesh are friends. They are preparing for their classes. Nick told his friend Brijesh while solving he found that " $\frac{\sqrt{2}+1}{\sqrt{2}-1}$ as a rational number". Brijesh claimed that "the sum of $\sqrt{2}$ and $\sqrt{1}$ is $\sqrt{2} + \sqrt{1}$ and not $\sqrt{2} + 1 = \sqrt{3}$. Both of them were very much fascinated by these numbers they learnt. They decided to give each other some questions based on it.  i) Find the value of $4\sqrt{32} \div 3\sqrt{8}$. ii) If $x = 9 - 4\sqrt{5}$, then find $x + \frac{1}{x}$. OR Express $2.2\overline{18}$ in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$. iii) Find the decimal expansion of $\frac{7}{8}$ and state its kind.

Q.37.

CASE STUDY-II

Anil went to buy some vegetables, he bought 'x' kgs. of tomato and 'y' kgs. of potato. The total cost of vegetables comes out to be of Rs. 200. Now if the cost of 1 kg of tomato is Rs. 50 and 1 kg of potato is Rs. 20, then answer the following questions.

i) Write the linear equation that represents the total cost?

ii) If Anil bought 'x' kgs of tomato and 2.5 kgs. of potato, then find the value of 'x'.
Or
If Anil bought '2' kgs of tomato and 'y' kgs of potato, then find the value of 'y'.

iii) Write the coordinates of the point for which the graph of $5x + 2y = 20$ cuts x-axis.

Q.38.

CASE STUDY-III

A craft mela is organised by Welfare Association to promote the art and culture for tribal people. Fairs and festivals are the custodians of our great cultural heritage. They connect the past glory with the progress of the present and are good source of inter reaction amongst the people. The pandal is to be decorated by using triangular flags around the field. Each flag has dimensions 25 cm, 25 cm and 22 cm.

i) Find the semi-perimeter of the flag for the above-mentioned dimensions. (1)

ii) Find the area of a flag. (1)

iii) Find the cost of making 300 such flags at the rate of ₹25 per cm^2.

OR

Find the area of an equilateral triangle whose perimeter is 90 m. (2)

ANSWERS							
Q.1.	C	**Q.2.**	C	**Q.3.**	B	**Q.4.**	C
Q.5.	A	**Q.6.**	D	**Q.7.**	B	**Q.8.**	A
Q.9.	A	**Q.10**	B	**Q.11**	C	**Q.12**	B
Q13	C	**Q.14**	C	**Q.15**	C	**Q.16**	C
Q.17	D	**Q.18**	A	**Q.19**	B	**Q.20**	A
Q.21	38^o	**Q.22**	50°, 60°, 70°	**Q.23**	Any three or $\sqrt{5}$	**Q.24**	First axiom
Q.25	16cm	**Q.29**	i)(0,-8) ii) (2,0) iii) x = 1, y = 5	**Q.30**	a=4, b=1	**Q.31**	$375\sqrt{15}m^2$, ₹ 4940 k = $\frac{1}{27}$
Q.32	(x-2) (x+3) (2x-5)	**Q.35**	12 cm, 9 cm	**Q.36**	i) $\frac{8}{3}$ ii)18 or $\frac{2216}{999}$ iii) 0.875, terminating	**Q.37**	i) 5x + 2y = 20 ii)3 or 5 iii) (4, 0)
		Q.38	i)36cm ii) $66\sqrt{14}cm^2$ iii) ₹495000				