INDIAN SCHOOL AL WADI AL KABIR

Mid-Term Revision Paper (2024-25)

Class: IX **Sub: MATHEMATICS** Max Marks: 80

Time:3 hours

General Instructions:

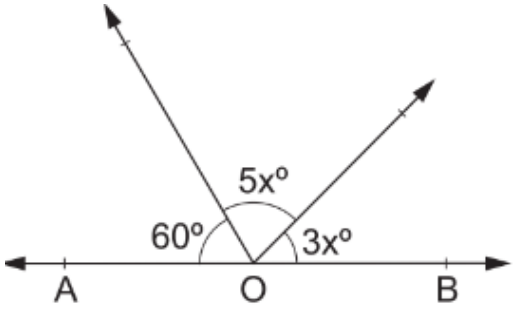
1. This question paper has 5 sections- A, B, C, D and E.
2. Section A- PART-1 (MCQ) comprises of 18 questions of 1 mark each
3. Section A- PART-2 (Assertion and Reason) comprises of 2 questions of 1 mark each.
4. *Section B*- (Short answer) comprises of 5 questions of 2mark each.
5. Section *C*- (Long 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. However, an internal choice has been provided for certain questions.

Section A

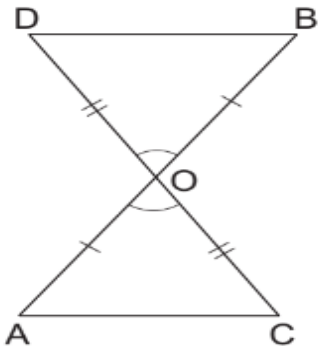
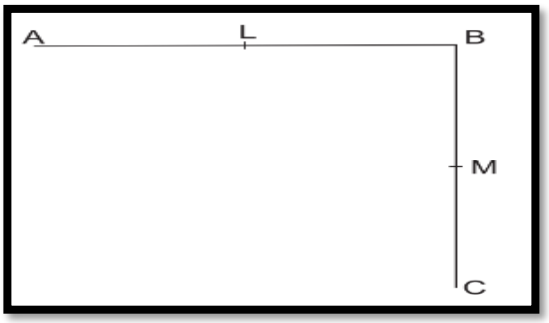
PART-1 MCQ (1 mark each)

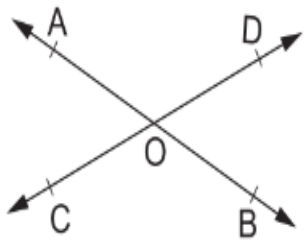
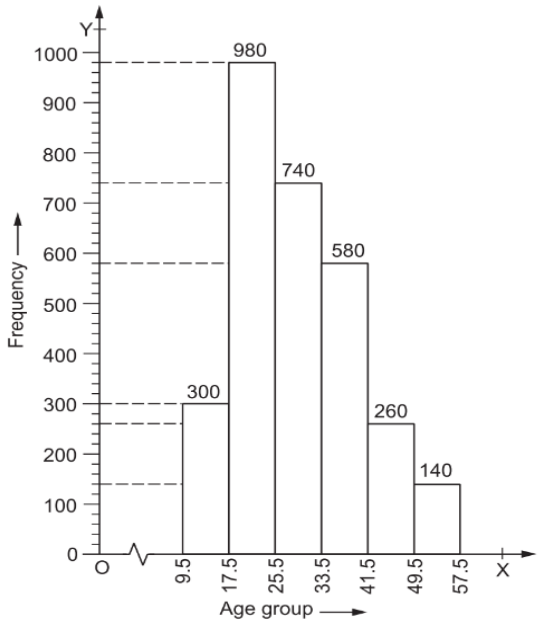
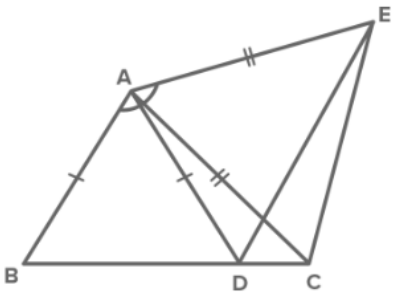
Q. 1.	The perimeter of an equilateral triangle is $36cm$, then its area (in cm^2) is:							
	A	$12\sqrt{3}cm^2$	**B**	$36\ cm^2$	**C**	$30cm^2$	**D**	$36\sqrt{3}cm^2$
Q. 2.	The decimal number $1.3\overline{23}$ in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$ is_____.							
	A	$\frac{131}{99}$	**B**	$\frac{97}{33}$	**C**	$\frac{53}{99}$	**D**	$\frac{2}{9}$
Q. 3.	According to Euclid's definition, boundaries of solids are:							
	A	lines	**B**	curves	**C**	surfaces	**D**	points

Q. 4.	The simplest rationalizing factor of $\frac{1}{\sqrt{72}}$ is _____.							
	A	$\sqrt{2}$	**B**	$\sqrt{72}$	**C**	$5\sqrt{2}$	**D**	None of these
Q. 5.	If the area of a right triangle with base 48 cm is 336 cm^2, then its height is _____.							
	A	12cm	**B**	14 cm	**C**	15cm	**D**	20cm
Q. 6.	The ordinate of every point on x-axis is:							
	A	1	**B**	-1	**C**	0	**D**	Any real number
Q. 7.	A pyramid is a solid figure, the base of which is a_____.							
	A	Only a square	**B**	Only a triangle	**C**	Only a rectangle	**D**	Any polygon
Q.8.	If p < 0 and q > 0 then the point (p, q) lies in quadrant_____.							
	A	II	**B**	IV	**C**	III	**D**	I
Q. 9.	The class marks of a frequency distribution are 15, 20, 25, 30,...The class corresponding to the class mark 20 is:							
	A	$12.5 - 17.5$	**B**	$17.5 - 22.5$	**C**	$18.5 - 22.5$	**D**	$19.5 - 24.5$
Q. 10.	The value of (-3 + $\sqrt{5}$) (-3 − $\sqrt{5}$) is:							
	A	13	**B**	-4	**C**	4	**D**	5
Q.11.	The measure of an angle is five times its complement. The angle measures _____.							
	A	25°	**B**	35°	**C**	65°	**D**	75°
Q.12.	It is given that $\Delta XYZ \cong FDE$, in which $XY = 6cm, \angle Y = 40°, \angle X = 80°$ and $FD = 6cm$. Then, which of the following is true?							
	A	$\angle D = 60°$	**B**	$\angle E$=60°	**C**	$\angle F = 60°$	**D**	$\angle D = 80°$
Q.13.	Two angles which are supplementary are in the ratio 3: 6. Then the measures of angles are:							
	A	$50°, 130°$	**B**	$70°, 110°$	**C**	$60°, 120°$	**D**	$20°, 160°$

<table>
<tr><td>Q.14.</td><td colspan="8">The width of each of the five continuous classes in a frequency distribution is 5 and the lower class limit of the lowest class is 10. The upper class limit of the highest class is</td></tr>
<tr><td></td><td>A</td><td>45</td><td>B</td><td>25</td><td>C</td><td>40</td><td>D</td><td>35</td></tr>
<tr><td>Q.15.</td><td colspan="8">The length of the sides of a triangle are 30 cm, 24 cm and 18 cm. The length of altitude of the triangle corresponding to the smallest side is:</td></tr>
<tr><td></td><td>A</td><td>18 cm</td><td>B</td><td>24 cm</td><td>C</td><td>30 cm</td><td>D</td><td>12 cm</td></tr>
<tr><td>Q.16.</td><td colspan="8">The perpendicular distance of the point Q (5,4) from the y-axis is_____.</td></tr>
<tr><td></td><td>A</td><td>5</td><td>B</td><td>4</td><td>C</td><td>9</td><td>D</td><td>-5</td></tr>
<tr><td>Q.17.</td><td colspan="8">In the given figure, AOB is a straight line. The value of x is:
 
</td></tr>
<tr><td></td><td>A</td><td>12</td><td>B</td><td>25</td><td>C</td><td>15</td><td>D</td><td>35</td></tr>
<tr><td>Q. 18.</td><td colspan="8">To draw a histogram to represent the following frequency distribution, the adjusted frequency for the class 300-500 is:
<table>
<tr><td>Class interval</td><td>100-150</td><td>150-200</td><td>200-300</td><td>300-500</td><td>500-800</td></tr>
<tr><td>Frequency</td><td>60</td><td>100</td><td>100</td><td>80</td><td>180</td></tr>
</table></td></tr>
<tr><td></td><td>A</td><td>60</td><td>B</td><td>50</td><td>C</td><td>100</td><td>D</td><td>20</td></tr>
<tr><td></td><td colspan="8">PART-2 ASSERTION AND REASON (1 mark each)</td></tr>
<tr><td></td><td colspan="8">DIRECTION: A statement of Assertion (A) is followed by a statement of Reason (R).
Choose the correct option.</td></tr>
</table>

Q.19	Statement A (Assertion): Things which are double of the same thing are equal to one another. Statement R (Reason): Euclid divided his famous treatise "The Elements" into 15 chapters. (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.20	Statement A (Assertion): If two triangles have two sides and the included angle of the one equal to the corresponding sides and the included angle of the other then the triangles are congruent. Statement R (Reason): If AB = QR, $\angle B = \angle R$, and BC = RP then $\Delta CAB \cong \Delta PQR$. (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.
	Section B S.A. (2 mark each)
Q. 21.	a) Represent $\sqrt{7.3}$ on number line. OR b) Find two irrational numbers between $\frac{2}{5}$ and $\frac{1}{2}$.

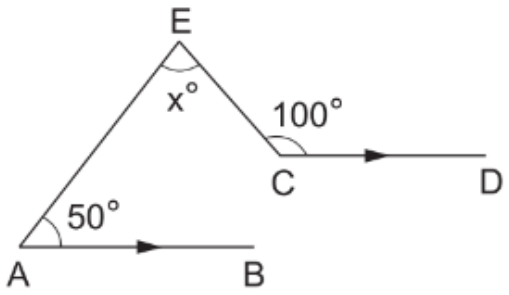
Q.22.	In the given figure, $OA = OB$ and $OC = OD$. Show that (i) $\Delta AOC \cong \Delta BOD$. (ii) $AC \parallel BD$. 
Q.23.	Calculate the area of the triangle whose sides are 18 cm, 24 cm and 30 cm in length.
Q.24.	a) In the given figure, L and M are the mid-points of AB and BC respectively. If AB = BC, prove that AL = MC. State the axiom used here.  OR b) State any two Euclid's axioms
Q.25.	Plot the points A (2, 5), B (–2, 2) and C (4, 2) on a graph paper. Join all the points in order and find the area of the figure formed.
	Section C S.A. (3 mark each)
Q.26.	State any three Euclid's postulates.
Q.27.	a) If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel. **OR**

	b) Two lines AB and CD intersect each other at a point O such that $\angle AOC : \angle AOD = 5 : 7$. Find all the angles. 
Q.28.	The base of a triangular field is three times its altitude. If the cost of sowing the field at ₹58 per hectare is ₹783, find its base and height. (1 hectare = 10000 m^2)
Q.29.	If $a = 3 - 2\sqrt{2}$, then find the value of $a^2 - \frac{1}{a^2}$.
Q.30.	The following graph depicts the number of literate females in the age group (10–57 years) in a village: (a) Which age group has the highest number of literate females and how much? (b) What is the lower class limit of the age group having least number of literate females? (c) What is the class size of the given class intervals? 
Q.31.	In the figure, AC = AE, AB = AD and ∠ BAD = ∠ EAC. Show that BC = DE. 

Section D

L.A.(5 mark each)

Q. 32. In the given figure, $AB \parallel CD, \angle BAE = 50°, \angle AEC = x°$ and $\angle ECD = 100°$. Find the value of x.



Q. 33. From the given figure, write:

a) the coordinates of the points P and R.

b) the sum of abscissa of the points V and T.

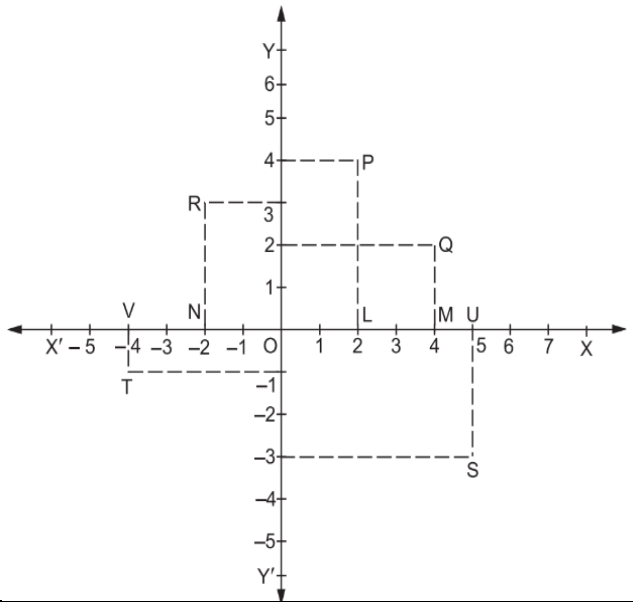
c) the point identified by the coordinates

(2, 0).

d) the ordinates of the points Q and M.

e) the perpendicular distance of the point S

from the y-axis.



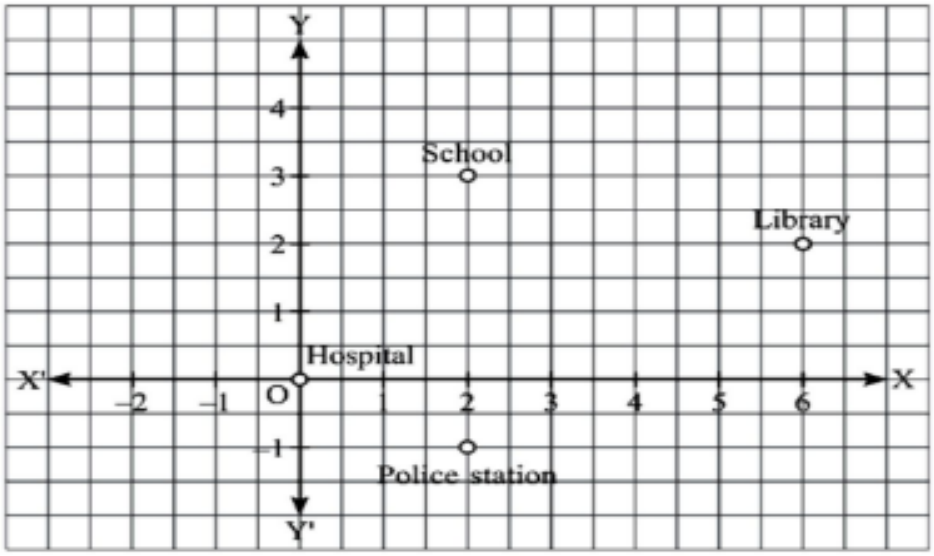
Q. 34. A random survey of the number of children of various age groups playing in a park was found as follows:

Age (in years)	1-2	2-3	3-5	5-7	7-10	10-15
Number of children	5	3	6	12	9	10

Draw a histogram to represent the given information.

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) Evaluate: $\left(\frac{64}{125}\right)^{\frac{-2}{3}} + \left(\frac{256}{625}\right)^{\frac{-1}{4}} + \left(\frac{3}{7}\right)^{0}$
	Section E **CASE STUDY BASED QUESTIONS(4 mark each)**
Q.36.	**CASE STUDY-I** Arya is a Class IX student residing in a village. One day, she went to a city Hospital along with her grandfather for general checkup. From there she visited three places - School, Library and Police Station. After returning to her village, she plotted a graph by taking Hospital as origin and marked three places on the graph as per her direction of movement and distance. The graph is shown below:  Based on the above information answer the following questions : i. What are the coordinates of School? (1m) ii. In which quadrant does the point (-1, 4) lies? (1m) iii. a) Find the distance between the school and the police station. OR (2m) b) What are the coordinates of Police Station? In which quadrant does it lie?
Q.37.	**CASE STUDY-II:** A Mathematics teacher asks students to collect the marks of Mathematics in Half yearly exam. She instructed to all the students to prepare frequency distribution table using the

data collected. Rahul collected the following marks (out of 50) obtained in Mathematics by 60 students of Class IX and prepared a frequency distribution table based on it:

21, 10, 30, 22, 33, 5, 37, 12, 25, 42, 15, 39, 26, 32, 18, 27, 28, 19, 29, 35, 31, 24, 36, 18, 20, 38, 22, 44, 16, 24, 10, 27, 39, 28, 49, 29, 32, 23, 31, 21, 34, 22, 23, 36, 24, 36, 33, 47, 48, 50, 39, 20, 7, 16, 36, 45, 47, 30, 22, 17.

Groups	Tally Marks	Frequency
0-10	II	2
10-20	𝍸 𝍸	10
20-30	𝍸 𝍸 𝍸 𝍸 I	21
30-40	𝍸 𝍸 𝍸 IIII	19
40-50	𝍸 II	7
50-60	I	1
	Total	**60**

Based on the above information, answer the following questions:

i. a) What is highest mark scored and how many students have scored it?

OR (2m)

b) The class marks of a distribution are 27, 32, 37, 42 and 47. Determine the class size and the class limits of the last class mark.

ii. How many students scored more than 20 but less than 30? (1m)

iii. What is the class mark of the class interval 30 – 40? (1m)

Q.38. **CASE STUDY-III**

Two salesmen make equal sales during the month of August. In September, each salesman doubles his sale of the month of August.

Use the above information, to answer the following questions:

i. a) Compare their sales in September. State the axiom used here.

OR (2m)

b) Solve the equation, x – 5 = 15. State the axiom used here.

	ii. What is the number of interwoven isosceles triangles in Sriyantra? (1m) iii. Euclid stated that 'all right angles are equal to each other', in the form of what? (1m)

ANSWERS							
Q.1	D	**Q.2**	A	**Q.3**	C	**Q.4**	A
Q.5	B	**Q.6**	C	**Q.7**	D	**Q.8**	A
Q.9	B	**Q.10**	C	**Q.11**	D	**Q.12**	B
Q.13	C	**Q.14**	D	**Q.15**	B	**Q. 16**	A
Q.17	C	**Q.18**	D	**Q.19**	C	**Q.20**	A
Q.21	b)0.414114111…. 0.424224222….	**Q.23**	216cm^2	**Q.24**	a) 7th axiom	**Q.25**	9 sq.units
Q.27	b) $\angle AOC = \angle BOD = 75°$ $\angle AOD = \angle COB = 105°$	**Q.28**	Height=300m Base= 900m	**Q.29**	$-24\sqrt{2}$	**Q.30**	a) 17.5-22.5, 980 b) 49.5, c) 8
Q.32	$x = 50°$	**Q.33**	**a)** P (2,4), R (-2,3) **b)** -4 + -4 = -8 **c)** L, **d)** 2 , 0 **e)** 5	**Q.35**	a) 0 b) $\frac{61}{16}$	**Q.36**	**(i)** (2,3) **(ii)** II quadrant **(iii)** a) 4units b)(-2,1), IV quadrant
Q.37	**(i)** (a) 50, 1 b) 5, 44.5-49.5 **(ii)** 21 **(iii)** 35	**Q.38**	**(i)** (a) Equal sales, 6th axiom (b) x= 20, axiom 2 **(ii)** 9 **(iii)** Postulate				