



BOYS' HIGH SCHOOL AND COLLEGE
FINAL TERM EXAMINATION (2024-25)
CLASS - IX
MATHEMATICS

Maximum Marks: 80

Time allowed: Three hours

You will not be allowed to write during first 15 minutes.

This time is to be spent in reading the question paper.

Section A is compulsory. Attempt any four questions from Section B.

The intended marks for the questions or parts of questions are given in brackets [].

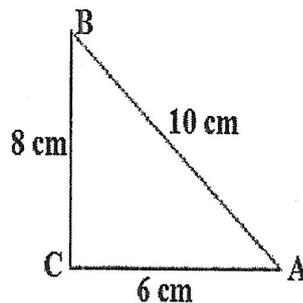
SECTION A

(Attempt all questions.)

Question 1: Choose the correct answer to the questions from the given options:

[15]

1. Given is a triangle ABC where $\angle C = 90^\circ$, find the value of $\sec B$:



- | | |
|---|--|
| <p>a. $\frac{8}{10}$</p> <p>c. $\frac{6}{10}$</p> | <p>b. $\frac{8}{6}$</p> <p>d. $\frac{10}{8}$</p> |
|---|--|
2. What is the value of $\operatorname{cosec} 30^\circ$?
- | | |
|-------------------------|---------------|
| a. $\frac{1}{2}$ | b. $\sqrt{3}$ |
| c. $\frac{1}{\sqrt{2}}$ | d. 2 |
3. If the value of $\tan 50^\circ = m$, then find the value of $\cot 40^\circ$.
- | | |
|------------|------------------|
| a. m | b. $\frac{1}{m}$ |
| c. $1 - m$ | d. $m - 1$ |
4. State the co-ordinates of point lying on the y-axis and whose ordinate is -10 .
- | | |
|---------------|-----------------|
| a. $(0, -10)$ | b. $(-10, -10)$ |
| c. $(-10, 0)$ | d. $(0, 0)$ |
5. What is the slope of line which makes an angle of 60° with the positive direction of the x-axis?
- | | |
|---------------|------------------|
| a. $\sqrt{2}$ | b. $\sqrt{3}$ |
| c. 60° | d. None of these |
6. Write the expansion of the given expression: $(x + 11)^2$
- | | |
|-----------------------|----------------------|
| a. $x^2 + 121$ | b. $x^2 + 121 + 22x$ |
| c. $2x + 121 + 22x^2$ | d. $x^2 + 22x$ |
7. Solve for 'x': $8x - 4(x + 5) = 2x - 6$
- | | |
|------|------|
| a. 4 | b. 5 |
| c. 6 | d. 7 |
8. The distance of any point on a circle from the centre is known as
- | | |
|-------------------------|---------------------------|
| a. Radius of the circle | b. Diameter of the circle |
| c. Arc of the circle | d. Segment of the circle |
9. A chord AB, 32cm in length, and the radius of the circle is 20 cm. Then, what will the distance of the chord from the centre?

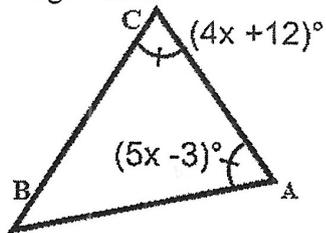


SECTION B

(Attempt any four questions from this section.)

Question 4:

1. Calculate the sum of money which will amount to Rs. 5445 in 2 years at 10% p.a. compound interest? [3]
2. Triangle ABC is an isosceles triangle, where AB = BC. Find the value of 'x' and hence find the interior angles of the triangle ABC. [3]



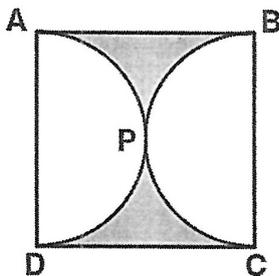
3. If $\tan \theta = \frac{20}{21}$, then find the value of $\frac{1 + \sin \theta + \cos \theta}{1 - \sin \theta + \cos \theta}$ [4]

Question 5:

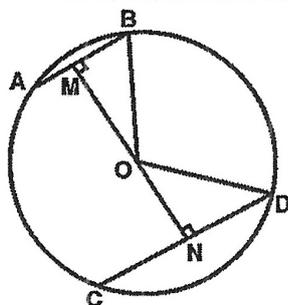
1. Evaluate : $\frac{\cos 45^\circ}{\sec 30^\circ + \operatorname{cosec} 30^\circ}$ [3]
2. Determine the slope and y - intercept of the line graph for the given equation: $5x - 3y + 15 = 0$ [3]
3. If $\theta = 60^\circ$, then find the value of: $2\sin^2 \theta + 3\cos^2 \theta - \tan^2 \theta$ [4]

Question 6:

1. From the given figure find the area of the shaded region, where ABCD is a square of side 14 cm. [3]



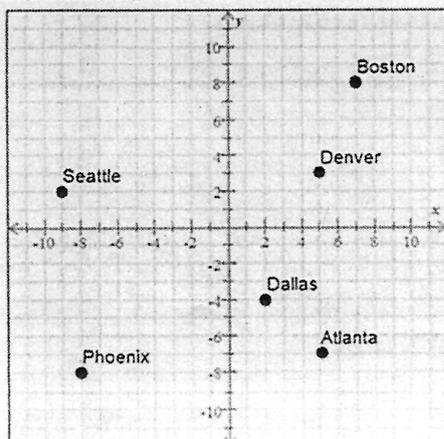
2. In the given figure, the radius of the circle with centre O is 5 cm and the length of chord AB is 6 cm and chord CD is 8 cm. Find the distance MN between the two chords. [3]



3. A and B are positive acute angles. If $\sin(A + B) = 1$ and $\cos(A - B) = \frac{\sqrt{3}}{2}$, find the value A and B. [4]

Question 7:

1. Find the value of: $5\sin 50^\circ \sec 40^\circ - 3\cos 59^\circ \operatorname{cosec} 31^\circ$ [3]
2. From the given graph read the coordinates of the following: [3]



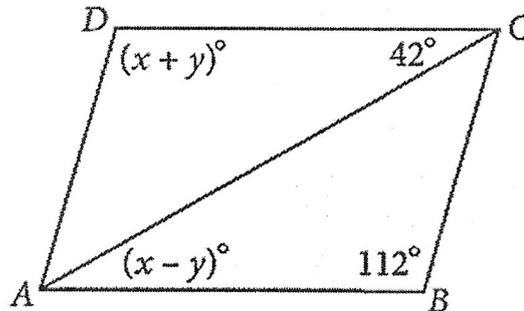
- i. Boston
- ii. Denver

- iii. Seattle
- iv. Phoenix
- v. Dallas
- vi. Atlanta

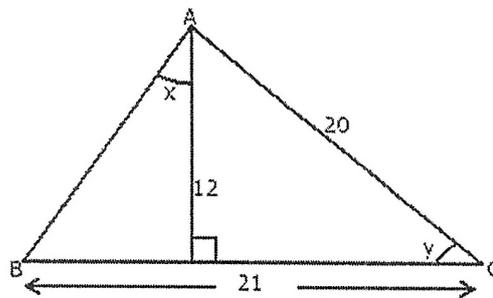
3. If a point A (2, -4) is equidistant from the points P (3, 8) and Q (-10, y), find the possible values of 'y'. [4]

Question 8:

- 1. Rationalise the denominator of the given irrational number: $\frac{\sqrt{6}}{\sqrt{2} + \sqrt{3}}$ [3]
- 2. The given figure ABCD is a parallelogram. Find the value of 'x' and 'y'. [3]



3. Use the information given in the figure to evaluate: $\frac{10}{\sin y} + \frac{6}{\sin y} - 6 \cot y$ [4]



Question 9:

- 1. Solve the given pair of equations for the value of 'x' and 'y': [5]
 - $41x + 53y = 135$
 - $53x + 41y = 147$
- 2. If the class intervals of the frequency distribution be 101 – 150, 151 – 200, 201 – 250, 251 – 300 the write the following: [5]
 - i. The class limits of the class interval 151 – 200
 - ii. The class boundary of the class interval 101 – 150
 - iii. The class size of the intervals given
 - iv. The class mark of 251 – 300
 - v. Name the type of class intervals shown above.

Question 10:

- 1. Construct a quadrilateral ABCD from the given data: AB = 3.5 cm, BC = 4.2 cm, CD = 3.8cm, AD = 3 cm and AC = 4.8 cm. [5]
- 2. By using distance formula, show that the points P (4, 2), Q (7, 5) and R (9, 7) are collinear. [5]

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