



BOYS' HIGH SCHOOL AND COLLEGE
FIRST TERM EXAMINATION (2025-26)
CLASS - IX
MATHEMATICS

Time: 3 hours

M.M: 80

SECTION - A

(Attempt all questions from this section)

Q1. Choose the correct answers to the questions from the given options: [15]

(i) In triangles ABC and PQR, $AB=PQ$ and $\angle B = \angle Q$. The two triangles are congruent by SAS, if

- | | |
|---------------|---------------|
| (a) $AC = PR$ | (c) $AC = QR$ |
| (b) $BC = PQ$ | (d) $BC = QR$ |

(ii) In $\triangle ABC$, $\angle B = 30^\circ$, $\angle C = 80^\circ$ and $\angle A = 70^\circ$, then

- | | |
|--------------------|--------------------|
| (a) $AB > BC < AC$ | (c) $AB > BC > AC$ |
| (b) $AB < BC > AC$ | (d) $AB < BC < AC$ |

(iii) A ladder 10 m long reaches a window 8m above the ground, then the distance of the foot of the ladder from base of the wall is

- | | |
|---------|--------|
| (a) 18m | (c) 6m |
| (b) 8m | (d) 4m |

(iv) D, E and F are the mid points of the sides BC, CA and AB respectively of an equilateral $\triangle ABC$. Then $\triangle DEF$ is

- | | |
|---------------------------|-----------------------------|
| (a) an isosceles triangle | (c) an equilateral triangle |
| (b) a scalene triangle | (d) None of these |

(v) The linear equation $x+y = 5$ has

- | | |
|-----------------------|-------------------------------|
| (a) a unique solution | (c) infinitely many solutions |
| (b) two solutions | (d) no solutions. |

(vi) Which of the following is not a factor of $40u^3v - 625v^4$?

- | | |
|-------------|---------------------------|
| (a) $2u+5v$ | (c) $2u-5v$ |
| (b) $5v$ | (d) $4u^2 + 10uv + 25v^2$ |

(vii) If the interest is compounded quarterly, the number of times the interest will accrue in a time period of $1\frac{1}{2}$ years, is

- | | |
|-------|-------|
| (a) 4 | (c) 8 |
| (b) 2 | (d) 6 |

(viii) The cube root of $a^3+3a^2b+3ab^2+b^3$ is

- | | |
|------------------------|---------------------------|
| (a) $a-b$ | (c) $a+b$ |
| (b) $a^3+b^3+3ab(a+b)$ | (d) $(a+b)^{\frac{1}{3}}$ |

(ix) A number is an irrational number if and only if its decimal representation is

- | | |
|---------------------|---------------------------------------|
| (a) non terminating | (c) non terminating and non-repeating |
| (b) terminating | (d) non terminating and repeating |

(x) Assertion (A): The value of $1000^3-900^3-100^3$ is 27,00,00,000

Reason (R): If $a + b + c = 0$, then $a^3+b^3+c^3 = 3abc$

- (a) A is true, R is false
 (b) A is false, R is true
 (c) Both A and R are true and R is the correct reason for A
 (d) Both A and R are true, and R is the incorrect reason for A

(xi) If a sum of money becomes 4 times of itself in 2 years at a certain rate of interest compounded annually. That certain rate of interest is _____.

- | | |
|---------------|---------------|
| (a) 100% p.a. | (c) 50% p.a. |
| (b) 400% p.a. | (d) 200% p.a. |

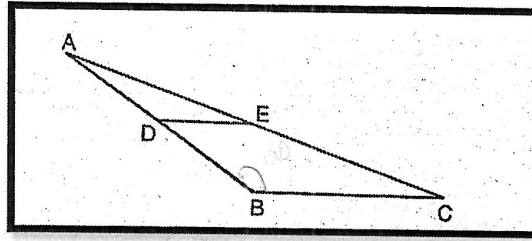


(iii) In the given $\triangle ABC$, D is the mid point of AB, E is the mid point of AC. Calculate:

[4]

(a) DE, if BC = 6 cm

(b) $\angle ADE$, if $\angle DBC = 140^\circ$



Question 6

(i) Factorise: $y^2 - 18y + 65$

[3]

(ii) If in a $\triangle ABC$, $BC = CA$ and $\angle A = 35^\circ$, find out giving reasons, which is longer BC or AB?

[3]

(ii) Solve for x and y: $\frac{2}{x} + \frac{3}{y} = 13$ and $\frac{5}{x} - \frac{4}{y} = -2$

[4]

Question 7

(i) At what rate percent per annum compound interest will ₹5000 amount to ₹5832 in 2 years?

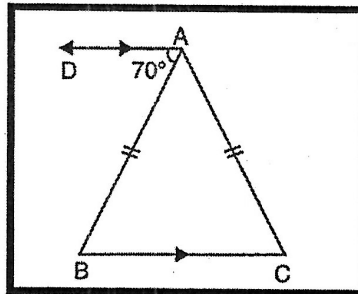
[3]

(ii) Insert three irrational numbers between $3\sqrt{2}$ and $\sqrt{12}$.

[3]

(iii) In the figure, it is given that $AB = AC$ and DA is parallel to BC. $\angle DAB = 70^\circ$. Find $\angle BAC$.

[4]



Question 8

(i) Find the value of $27x^3 + 8y^3$ if $3x+2y=14$ and $xy=8$

[3]

(ii) Factorise: $a^6 - b^6$

[3]

(iii) If $\frac{3+\sqrt{5}}{2\sqrt{5}+3} = a + b\sqrt{5}$, find the values of rational numbers a and b.

[4]

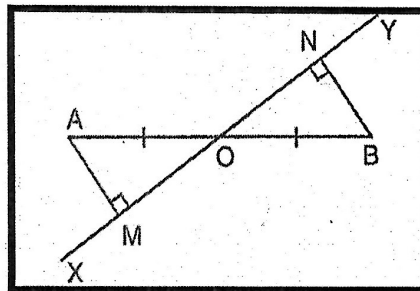
Question 9

(i) The difference between simple interest and compound interest on a certain sum for 2 years at 5% p.a. is ₹20. Find the principal.

[5]

(ii) In the given figure, prove that $\triangle OAM$ and $\triangle OBN$ are congruent and hence prove that $AM = BN$.

[5]



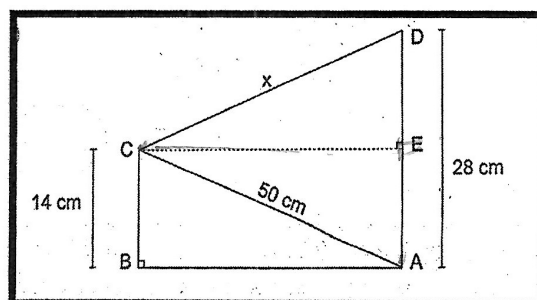
Question 10

(i) The denominator of a fraction is greater than its numerator by 11. If 8 is added to both its numerator and denominator, it becomes $\frac{3}{4}$. Determine the fraction.

[5]

(ii) In the given figure, $BC \parallel AD$. Find x.

[5]



(xii) Which of the following is a surd?

- (a) $\sqrt{9}$ (c) $\sqrt[4]{256}$
(b) $\sqrt[3]{13}$ (d) $\sqrt[3]{8}$

(xiii) The equation $x = 7$ in two variables x and y , can be written as

- (a) $1 \cdot x + 1y = 7$ (c) $0x + 1y = 7$
(b) $1 \cdot x + 0 \cdot y = 7$ (d) $0x + 0y = 7$

(xiv) In two triangles ABC and PQR, if $AB = QR$, $BC = PR$, $CA = PQ$, then

- (a) $\triangle PQR \cong \triangle ABC$ (c) $\triangle PRQ \cong \triangle CBA$
(b) $\triangle BAC \cong \triangle RPQ$ (d) $\triangle BCA \cong \triangle PQR$

(xv) Why is the hypotenuse always the longest side in a right-angled triangle?

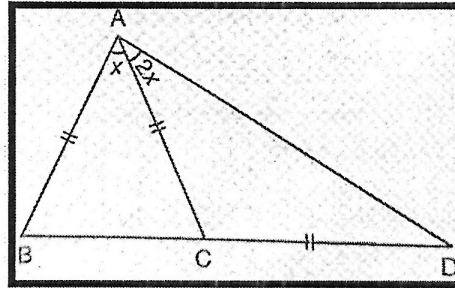
- (a) because it touches the right angle
(b) because it is a curved line
(c) because it is opposite to the largest angle
(d) because it is always vertical

Question 2

- (i) Express the following in the form $\frac{p}{q} : 0.\overline{47}$ [4]
(ii) Find the amount on ₹15000 at CI in 2 years, if the rates for successive are 8% and 9%. [4]
(iii) If $a+b=3$ and $ab=2$, find the values of [4]
(a) a^2+b^2 (b) $a-b$

Question 3

- (i) Factorise: $81x^4 - 256y^4$ [4]
(ii) Find the lettered angle in the following figure. [4]



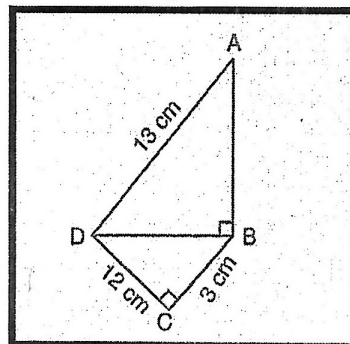
- (iii) Solve for x and y : [5]
 $65x - 33y = 97$, $33x - 65y = 1$

SECTION-B

(Attempt any four questions from this section)

Question 4

- (i) Simplify: $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$ [3]
(ii) Factorise: $32(x+y)^2 - 2x - 2y$ [3]
(iii) In the given figure, ABCD represents a quadrilateral in which $AD = 13$ cm, $DC = 12$ cm, $BC = 3$ cm, and $\angle ABD = \angle BCD = 90^\circ$. Calculate the length of AB. [4]



Question 5

- (i) Find the value of $a^2+b^2+c^2$ if $a+b+c = 17$ and $ab + bc + ca = 30$. [3]
(ii) In how many years will a sum of ₹1200 amount to ₹1323 at the compound interest rate of 5% p.a.? [3]

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