

Tender Heart High School, Sec. 33B, Chd.

Class : 9th

Date: 20-02-2025

Subject : Maths

Teacher: Ms. Reena

Full Syllabus Revision (Term-2)

SECTION - A

Ques 1 Choose the correct answer

(i) Factorisation of $p^4 - 81$ is

(a) $(p^2 - 9)(p^2 + 9)$

(b) $(p - 3)(p + 3)(p^2 + 9)$

(c) $(p - 3)^2(p + 3)^2$

(d) none of these

(ii) The solution of the pair of linear equations
 $2x - y = 5$ and $5x - y = 11$ is

(a) $x = -1, y = 2$

(b) $x = 2, y = -1$

(c) $x = 0, y = -5$

(d) $x = \frac{5}{2}, y = 0$

(iii) The sum of two natural numbers is 240
and their ratio 3:5. Then the greater number is

(a) 180

(b) 160

(c) 150

(d) 90

(iv) If $\log_5(0.04) = x$, then the value of x is

(a) 2

(b) 4

(c) -4

(d) -2

(v) If the volume of a cube is 729m^3 , then
its surface area is

(a) 486cm^2

(b) 324cm^2

(c) 162cm^2

(d) None of these.

(vi) If $\cos A = \frac{4}{5}$, then the value of $\tan A$ is

(a) $\frac{3}{5}$

(b) $\frac{3}{4}$

(c) $\frac{4}{3}$

(d) $\frac{5}{3}$

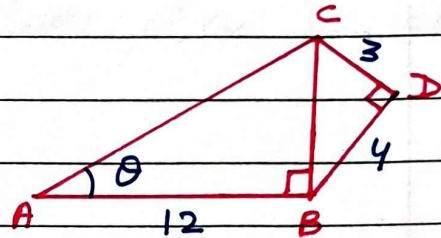
(vii) In the adjoining figure, the value of $\sec \theta$ is

(a) $\frac{12}{13}$

(b) $\frac{13}{12}$

(c) $\frac{5}{12}$

(d) $\frac{5}{13}$



(viii) The value of $\tan^2 30^\circ - 4 \sin^2 45^\circ$ is

(a) 1

(b) $\frac{7}{3}$

(c) $-\frac{5}{3}$

(d) $-\frac{11}{3}$

(ix) The points whose abscissa and ordinate have different signs will lie in

(a) I and II quadrants

(b) II and III quadrants

(c) I and III quadrants

(d) II and IV quadrants

(x) Median of the numbers 4, 4, 5, 7, 6, 7, 7, 3, 12 is

(a) 4

(b) 5

(c) 6

(d) 7

(xi) Assertion (A): Solving two linear equations $4x - 5y = 1$, $x + y = 7$ simultaneously, we get a unique solution $x = 4$, $y = 3$.

Reason (R): One of the methods of solving a pair of linear equations is substitution.

(a) (A) is true, (R) is false

(b) (A) is false, (R) is true

(c) Both (A) and (R) are true

(d) Both (A) and (R) are false

Assertion(A):

(xii) Runs scored by batsman A are 55, 60, 30, 80 while runs scored by batsman B are 81, 87, 76, 92. Then B has higher range than A

Reason(R): Range is the difference between maximum and minimum values of a variable.

(a)

(b)

(c)

(d)

(xiii) Assertion(A): If the points $A(2, 9)$, $B(2, 5)$ and $C(5, 5)$ are joined, then $\triangle ABC$ is right angled.

Reason(R): If $AC^2 = AB^2 + BC^2$, then $\angle B = 90^\circ$

(a)

(b)

(c)

(d)

Assertion(A):

(xiv) The volume of a cuboid having length, breadth and diagonal as 4m, 3m and 13m is 144 m^3

Reason(R): Length of diagonal of a cuboid is $\sqrt{l^2 + b^2 + h^2}$

(a)

(b)

(c)

(d)

(xv) The mean of $(x-1)$, $(x+1)$, $(x+3)$ and $(x+5)$ is.

(a) $x+1$

(b) $x+2$

(c) $x+3$

(d) $x+4$

Ques 2

(i) Use graph for this question

Construct a combined histogram and frequency polygon for the following data:-

Weekly earnings (in rupees)	150-165	165-180	180-195	195-210	210-225
No. of workers	8	14	22	12	15

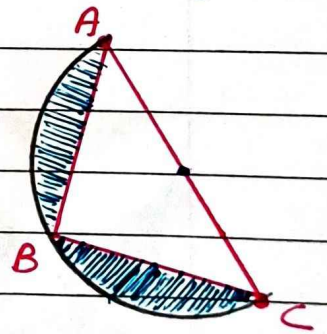
(ii) Show that the points $A(3,0)$, $B(4,5)$ and $C(-1,4)$, $D(-2,-1)$ taken in order are the vertices of a rhombus. Also find the area of the rhombus.

[Ans. Area = 24 sq. units]

(iii) In the given figure,

ABC is an isosceles right angled triangle with $\angle ABC = 90^\circ$

A semi-circle is drawn with AC as diameter. If $AB = BC = 7\text{cm}$, find the area of the shaded region. (Take $\pi = \frac{22}{7}$)



[Ans. 4cm^2]

Ques 3

(i) The area of a rectangle gets reduced by 9 sq. units, if its length is reduced by 5 units and the breadth is increased by 3 units. If we increase the length by 3 units and the breadth by 2 units, then the area is increased by 67 sq. units. Find the dimensions of the rectangle.

[Ans. $l = 17\text{cm}$
 $b = 9\text{cm}$]

- (ii) Factorise (a) $3 - 12(a-b)^2$
(b) $x^3 - 3x^2 - x + 3$

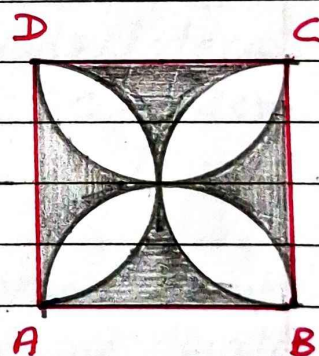
(iii) Use graph paper for this question
Draw the graph of $4x - 3y = 0$ and $2x + 3y = 18$
Take $1\text{cm} = 1\text{unit}$ on both axes and plot
three points per line.
Write down the coordinates of the point of
intersection.

SECTION B

Question 4

(i) If $\tan \theta = \frac{5}{12}$, find $\sec \theta + \operatorname{cosec} \theta - \tan \theta$

(ii) In the adjoining figure,
ABCD is a square of side
14cm and semi-circles are
drawn with each side of
the square as diameter.
Find the area of the shaded
region.



[Ans. 84cm^2]

(iii) Show that the points $(7, 10)$, $(-2, 5)$ and $(3, -4)$
are the vertices of an isosceles right triangle.

Question 5

(i) A closed rectangular box has inner dimensions
90cm by 80cm by 70cm. Calculate its capacity
and the area of tin-foil needed to line
its inner surface. [Ans. 504000cm^3
 38200cm^2]

(ii) Solve the following pairs of linear equations by cross-multiplication method:-

$$x - 3y - 7 = 0, \quad 3x - 3y = 15 \quad \left[\text{Ans. } \begin{matrix} x = 4 \\ y = -1 \end{matrix} \right]$$

(iii) Find the value of 'x'

$$(a) \log_{64} x = \frac{2}{3} \quad \left[\text{Ans. } x = 16 \right]$$

$$(b) \log_5 (0.008) = x \quad \left[\text{Ans. } x = -3 \right]$$

Question 6

(i) A two digit number is seven times the sum of its digits. The number formed by reversing the digits is 18 less than the original number. Find the number. [Ans 42]

(ii) Calculate the area of a quadrilateral ABCD in which $\angle A = 90^\circ$, $AB = 30\text{cm}$, $BC = 42\text{cm}$, $CD = 20\text{cm}$ and $DA = 16\text{cm}$ [Ans. 576cm^2]

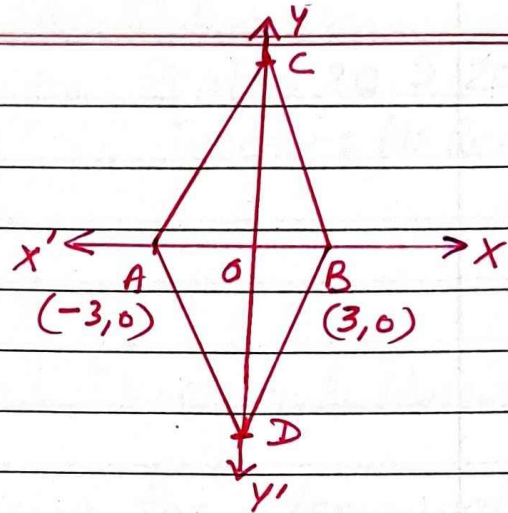
(iii) A cube 11cm edge is immersed completely in a rectangular vessel containing water. If the dimensions of the base of the vessel are $15\text{cm} \times 12\text{cm}$, find the rise in the water level in centimeters correct to 2 decimal places, assuming that no water overflows. [Ans. 7.39cm]

Question 7

(i) If $\sin \theta = \frac{\sqrt{3}}{2}$ and $\cos \phi = \frac{1}{\sqrt{2}}$, find the value

$$\text{of } \frac{\tan \theta - \tan \phi}{1 + \tan \theta \tan \phi} \quad \left[\text{Ans. } 2 - \sqrt{3} \right]$$

- (ii) In the adjoining figure, $\triangle ABC$ and $\triangle ADB$ are equilateral triangles. Find the coordinates of the point C and D where $A(-3,0)$, $B(3,0)$ are given.



[Ans. $C(0, 3\sqrt{3})$, $D(0, -3\sqrt{3})$]

- (iii) Use graph for this question.

Draw a histogram and frequency polygon both on same graph.

Monthly wages	850-950	950-1050	1050-1150	1150-1250	1250-1350
No. of workers	35	45	75	60	40

Question 8

- (i) Find median for the following data

Variate	23	26	20	30	28	25	18	16
Frequency	4	6	13	5	11	4	8	9

[Ans. 21.5]

- (ii) Use graph for this question

Draw an (cumulative frequency curve) ogive

Marks obtained	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	4	10	6	8	5	9

- (iii) Evaluate

$$\sin^2 34^\circ + \sin^2 56^\circ + 2 \tan 18^\circ \tan 72^\circ - \cot^2 30^\circ$$

[Ans 0]