



JAFFNA HINDU COLLEGE

First Term Exam - 2023

Grade - 10

Mathematics

Time :- 2 Hours

Name/Index No:

Part - I

❖ Answer all the questions.

01) Simplify :- $\frac{3}{8} + \frac{2}{8}$

02) Fill the blank cage :- $\frac{6}{7} = \frac{\square}{12}$

03) Make p as the subject in $\frac{x}{1-p} = \frac{2x+1}{3}$

04) Find the L. C. M of x^2 , y^2 and $8xz^2$

05) An article sold at Rs 960 with 20% profit. Find the buying price.

06) Select the most appropriate value for $\sqrt{11}$

I. 3.1

II. 3.2

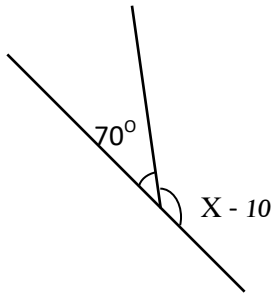
III. 3.3

07) Simplify: $-10111_{\text{two}} - 101_{\text{two}} - 111_{\text{two}}$.

08) Simplify :- $\frac{3}{a-1} - \frac{2}{1-a}$

09)

Find the value of X

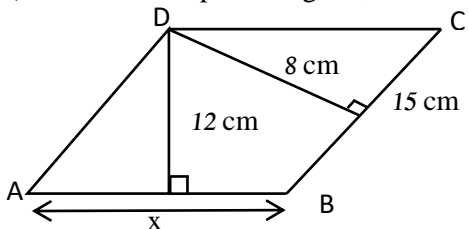


10) If $484 = 2 \times 2 \times 11 \times 11$, find the value of $\sqrt{484}$.

11) How much is the 4% of 10Kg ?

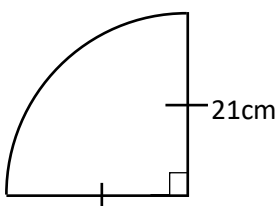
12) If $x = \frac{a^2 + b^2}{5a}$, $y = \frac{a^2 + b^2}{4a}$ find the value of $10x + 8y$

13) If ABCD is a parallelogram, find the length of AB



14)

Find the arc length of the sector



15) Write the inequality represented by given number line



16) Factorize :- $2x^3 - 50x$

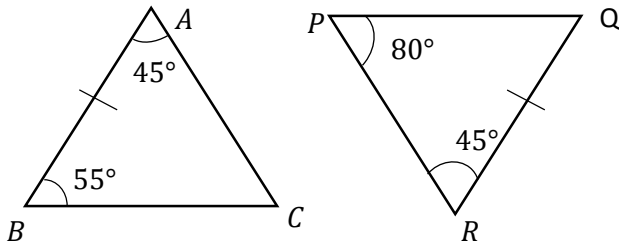
17) Find the common term of the number pattern 15, 19, 23, 27,

18) Equation of a straight line is $3y = 4x - 9$

i. Find the gradient

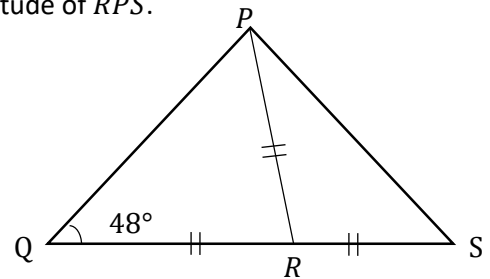
ii. What is the intercept

19)



Write whether the two triangles are congruent or not, if congruent write the condition.

20) In this figure $QX = PX = RS$, $\hat{PQR} = 48^\circ$. Find the magnitude of \hat{RPS} .



21) In the distribution 8, 5, 7, 4, 6, 9, 7, 7, 10

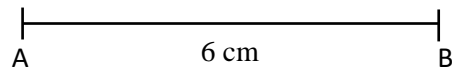
i. What is the mode.

ii. Find the median.

22) Find the constant term that should be added to make $a^2 + 5ab$ as perfect square and write down the perfect square.

23) $A = \{\text{Square numbers less than twenty}\}$.
Represent the set A in Venn diagram.

24) A, B are two fixed points such that $AB = 6\text{cm}$, find two points P and Q which are 4 cm from AB and also equidistant from A and B, using your knowledge of locus.



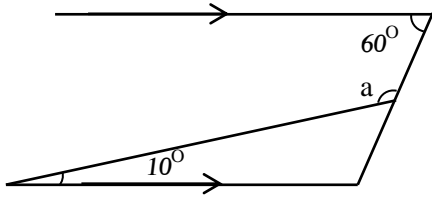
25) The present age of father is five less than thrice the age of his son. Ten years ago father's age was four times of his son. Find the present age of son.

26) Simplify :- $9(2x - 3) - 5(x - 4)$

27) An exterior angle of a regular polygon is $\frac{1}{8}$ of an interior angle. Find the number of sides.

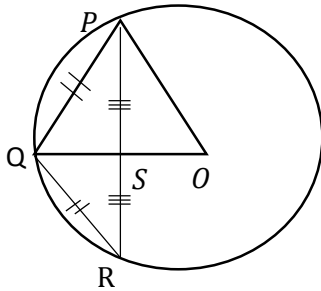
28) A certain work can be done in 5 days By 6 men. Find the number of days needed to complete $\frac{1}{3}$ of above task by 5 men.

29) Find the magnitude of a .



30) In this figure O is the center of circle with radius 10 cm , OS is perpendicular to PR and

31) $PQ = QR = \sqrt{80}\text{ cm}$. find the length of PR .



(30 x 2 = 60 marks)

Part II

❖ Answer any seven questions.

01) a. simplify :- $\frac{3}{5} + \frac{1}{6} \div 1\frac{1}{2}$

b. kumaran bought 5000 apples. $\frac{1}{5}$ of those were spoilt. He sold $\frac{3}{4}$ of the remaining apples, then he donated the rest to his neighbours.

i. Find the fraction of unspoilt apples.

ii. Find the fraction of apples sold.

iii. Find the fraction of apples donated to neighbours.

iv. If the selling price of an apple is Rs 60, find the amount received from selling apples.

v. If he gained Rs 30 000 profit, find the buying price of an apple.

02) Two equal sectors have removed from a triangular lamina; An emblem was made by using the remaining lamina (shaded part)

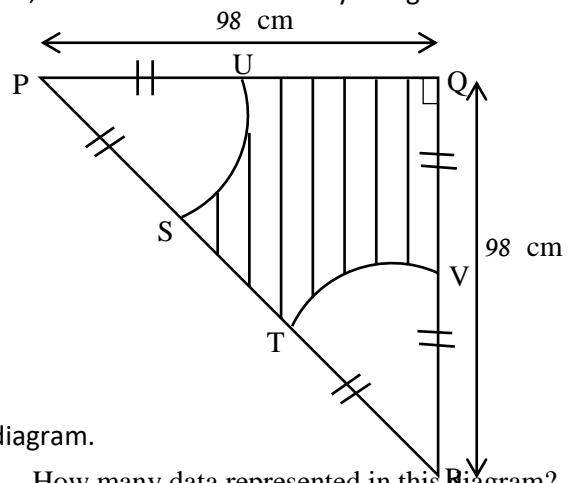
i. Find the area of triangle PQR.

ii. Find the area of a sector

iii. Calculate the area of shaded portion

iv. Find the area length of a sector

v. Find the perimeter of shaded portion.



03) A. Answer the questions using following stem and leaf diagram.

Stem	Leaf
1	1 3 4
2	5 7 8 9
3	2 4 4 7
4	3 6 6 6 9
5	0 1 2

a.

How many data represented in this diagram?

b.

Find the range.

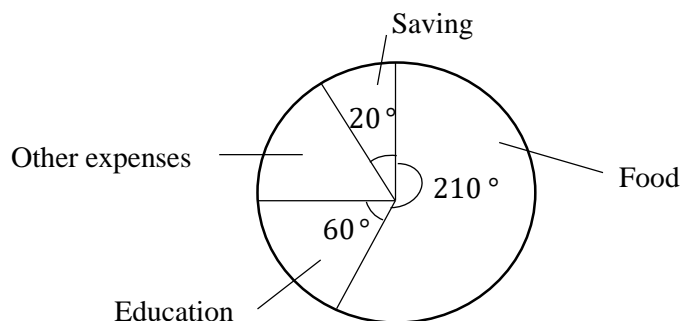
c.

What is the mode

d.

Find the median

b. The given pie chart shows about the monthly expenses of a person.



i. For which expense did he spend most of his salary?

ii. Express the fraction of whole amount spent for other expenses.

iii. If the saving amount is Rs 4000, find his monthly salary.

iv. How much was spent for children's education.

04) a) A trader bought an article and marked the price with 25% profit then he allowed 10% discount when selling it.

- i. If the selling price is Rs 2250, find the marked price.
- ii. Find the purchasing price.
- iii. Find the percentage of profit
- iv. What percentage of discount should be given to get 20% profit from above business?

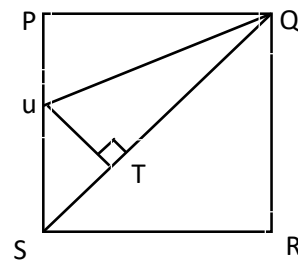
b) A person sold his vehicle through broker. After paying the brokerage Rs 150 000, Rs 4 850 000 left with him.

- i. What is the selling price
- ii. Find the percentage of brokerage

05) a) PQRS is a square the bisector of \hat{PQT} meets PS at u. the perpendicular drawn from U to SQ is UT. Prove that

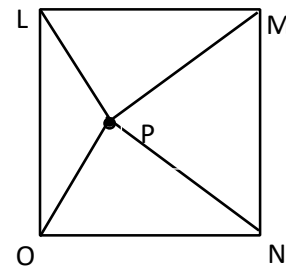
i. $\Delta PQU \equiv \Delta UQT$.

ii. $\hat{P}UQ = \hat{O}UT$.



b) LMNO is a square. PMN is an equilateral triangle.

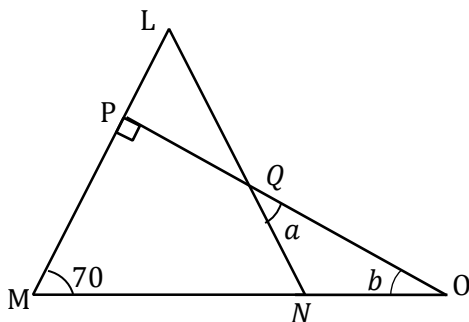
- i. Find the value of $\hat{P}MN$.
- ii. Find $\hat{L}MP$.
- iii. Write the relation between the sides PN and ON ? give reasons.
- iv. Find the magnitude of $\hat{N}PO$.
- v. Find the magnitude of $\hat{O}PM$.
- vi. Find $\hat{L}PO$.



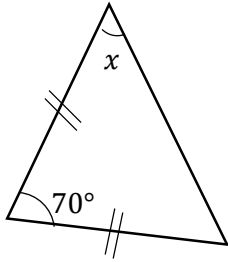
06)

a)

- i. It $\hat{M}PO = 90$, and $MN = LN$, find the magnitudes of a and b.

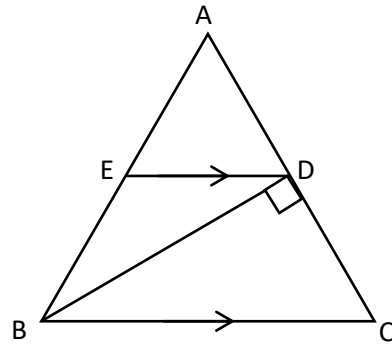


ii. Find the value of x



b) In $\triangle ABC$, D is the mid-point of AC . E is a point on AB such that BC is parallel to ED . If BD is perpendicular to AC , prove the following.

- i. $\triangle ABD \cong \triangle BCD$.
- ii. $\angle ABD = \angle CBD$
- iii. $\triangle BED$ is an isosceles triangle
- iv. $\triangle AED$ is an isosceles triangle



07)

1)

Factorize

$\therefore 2x^2 - 5x - 3$

- 2) If the surface area of a cube is 1500 cm^2 , find the length of an edge to one decimal.
- 3) If $a + b = 17$, $ab = 40$, find the value of $a^2 + b^2$ using the expansion of the square of binomial.
- 4) Simplify $\therefore (3x - 2)(x + 5)$
- 5) If $x = \sqrt{5}$, find $25 - x^2$
- 6) Find the L. C. M of $12a$ and $9(a - b)$

08)

- i. If $k = mgh$ $k = 40$, $m = 10$, $g = 2$, find the value of h .
- ii. Solve :

$$2a + 5b = 19$$

$$2a - 3b = -5$$

x	-2	-1	0	1	2
y	-5	+1	+4

incomplete table of the graph $y = 3x + 1$ is given below.

iii.

Solve :-

$$3x + 2 \{5(x + 1) + 4x\} = 73.$$

iv.

An

- a. Fill the blank cages.
- b. Draw the graph.
- c. Write the equation of the straight line which is parallel to the above line and passes through the point $(0, 3)$