



Jaffna Hindu College

1st Term Evaluation Exam - 2022

Grade - 10

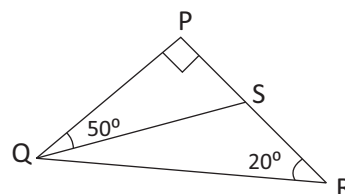
Maths

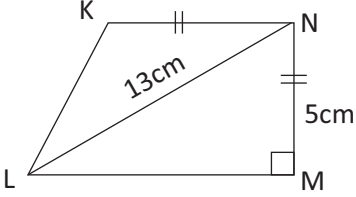
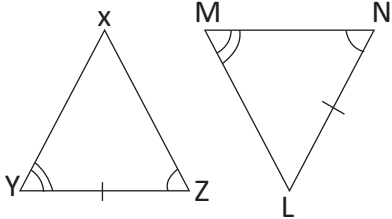
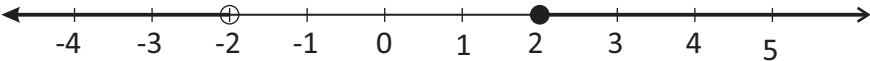
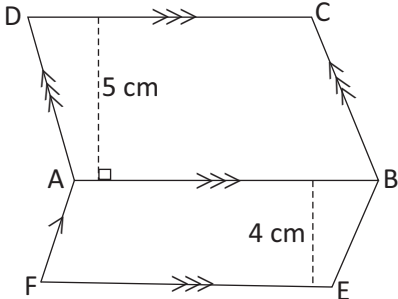
Time : 3.00 Hours

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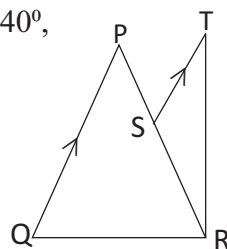
Part - I

- 01) If the first approximation of the square root of an integer is 3.9, Find that number
- 02) Solve $2 - \frac{x}{5} = 1$
- 03) Make x the subject of the formula $\ell x = m - kx$
- 04) A certain task can be completed in 5 days by 8 men. Find how many more men required to complete the same task in 4 days.
- 05) Find the LCM of $5x^2, 10xy, 4xy^2$
- 06) Marked price of an item is Rs 800. If the item is sold with a discount of 3%. Find the selling price.
- 07) Find the amount remaining after spent $\frac{3}{8}$ of Rs. 180.
- 08) According to the information in the figure
i) Find the magnitude of \hat{SQR}
ii) Name a side equal in length of SR

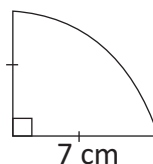


09)	Find the value $11011_{\text{two}} + 101_{\text{two}} - 110_{\text{two}}$
10)	Find the area of the trapezium according to the information in the figure. 
11)	Are the two triangles in the figure congruence? Give reasons. 
12)	Simplify $\frac{2x}{2x+1} + \frac{1}{2x+1}$
13)	Fill in the blanks. $\left(\frac{x^2}{y^{-3}}\right)^2 = \frac{1}{x \square \times y \square}$
14)	Find the equation of the straight line passing through origin and parallel to the straight line $y=2x-1$
15)	Write the inequality represented on the number line 
16)	If the area of the parallelogram ABCD is 45cm^2 Find the area of parallelogram ABEF according to the information given in the figure. 

- 17) In triangle PQR, $PQ = PR$, $PQ \parallel ST$ and $\angle SRT = \angle STR = 40^\circ$,
Find the magnitude of $\angle QRT$.



- 18) Find the perimeter of the sector given in the figure

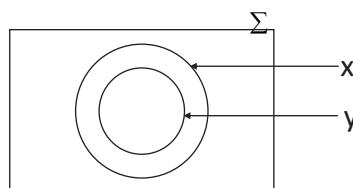


- 19) According to the information give in the Venn diagram.

$$x \cap y = \boxed{}$$

$$y \cup x = \boxed{}$$

Name the set equal to the given set notations



- 20) Factorise. $8x^2 - 18y$

- 21) Fill in the blanks.

$$(\dots + b)^2 = \dots + 10b + b^2$$

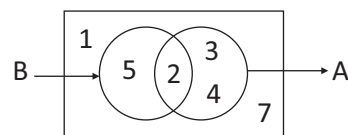
- 22) If the area of the sector of radius 14cm is 77cm^2 , Find the central angle of the sector.

- 23) Fill in the blanks in the statement given below using suitable words.

The formed when a side of a triangle is produced is equal to sum of the two

- 24) One factor of $2x^2 - 5x - 3$ is $2x + 1$. Find the other factor.

25) Write the set A' with elements.



26) x and y are two quantities which are inverse proportional. K is a constant.

For the statement given below, mark '✓' in front of the correct statements and a '✗' in front of the incorrect statements.

1	$xy = k$	
2	$\frac{y}{x} = k$	
3	$\frac{x}{y} = k$	

27) Find the probability of the number marked in the card being a triangular number which drawn from the box containing cards numbered from 1 to 10.

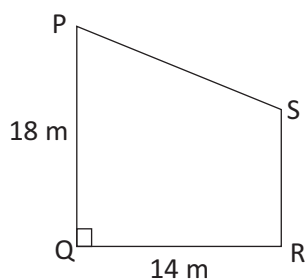
28) Interior angle of a regular polygon is 120° more than its exterior angle find the number of sides of that polygon.

Class Interval	Frequency
10 - 20	6
21 - 30	4
31 - 40	3
41 - 50	7
51 - 60	11
61 - 70	4

Given grouped frequency distribution shows the marks obtained by 35 students.

- What is the modal class?
- What is the median class?

30) PQRS is a land. A light post T has to be constructed equi distance from P and S and 12m from Q. Mark the point T using the knowledge on loci.



(30x2 = 60 Marks)

Part - II

❖ Answer seven questions only.

01. a) Simplify $7\frac{1}{3} - \frac{2}{7} \times 3\frac{1}{2}$

b) $\frac{2}{7}$ of a land cleaned in first day and $\frac{1}{10}$ of the remaining cleaned in second day.

- i) What fraction of the whole land remaining to be cleaned at the end of the first day.
- ii) What fraction of the whole land cleaned in the second day.
- iii) Area of the land cleaned in the two days is 1200m². Find the area of the whole land.
- iv) It is estimated that 8 men takes 4 days to clean the remaining part of the land. How many men required to clean the remaining part in 2 days.

02. a) Vendor marks the price of an item such that he earns a profit of 10%. He offers a discount of 2% on the marked price when the item is sold. If the item is sold for Rs. 862.40

- i) Find the marked price of the item
- ii) Find the purchase price of the item.
- iii) What is the difference between the profit earned and expected profit.
- iv) find the percentage of profit he earned?

b) A person who sells his laptop is left with Rs 74400 after paying 7% to the broker. Find the commission charged by the broker.

03. In triangle PQR, QR produced to D. Bisector of $\angle PQR$ meet QR at K.

i) Prove that $\angle PRD + \angle PQR = 2\angle PKD$

The straight line drawn through Q parallel to PR meets the PK produced at F

ii) Prove that PQR is an isosceles triangle.

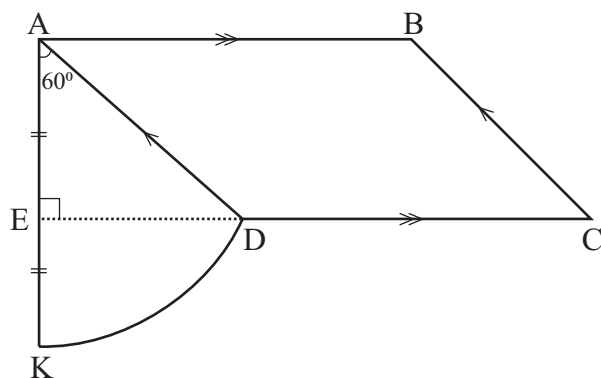
iii) Show that $\angle PRD = \angle QKF + \angle QFK$

04. a) Solve

$$\frac{m}{2} - \frac{m+2}{3} = \frac{3}{4}$$

b) Sum of the present ages of father and son is 54. Present age of father is 2 less than thrice the present age of son. Taking the present age of father as x and the present age of son as y, construct two simultaneous equations and find the present ages of the father and son separately.

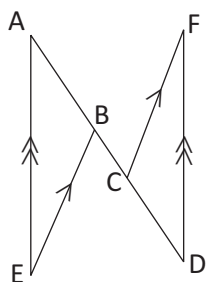
05)



The figure shows a land consisting of sector with center A and KD as its arc and a rhombus ABCD. $AD = 21\text{cm}$, $AE = EK$

- Find the arc length of KD.
- Find the perimeter of the land.
- Find the area of rhombus ABCD
- Find the area of whole land.
- It is required to add a rectangular plot that is of area equal to four times the area of the above land, with AK as a side. Find the length of the land.

06)



In the figure, ABCD is a straight line such that $AB = CD$, $BE \parallel FC$ and $AE \parallel FD$

- Show that $\triangle ABE \cong \triangle DCF$
- Complete the quadrilateral AFDE in the figure and show that $AF \parallel ED$
- Show that $\angle BAE + \angle AEB = 180^\circ - \angle DCF$

07) i) Find the value of $12^2 - 8 \times 12 + 15$ by using the knowledge of factors of trinomial quadratic expression.

ii) Factorise

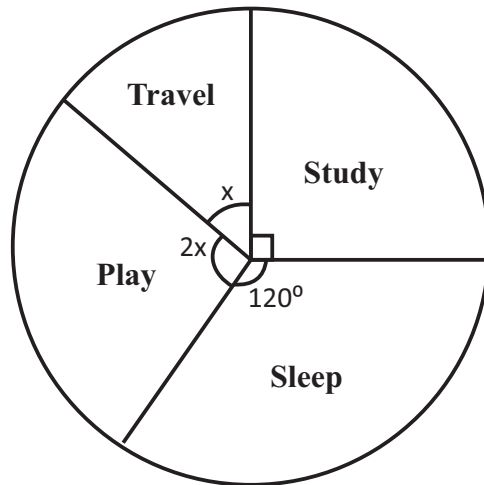
a. $-k^2 - k + 6$

b. $(a^2 - 2ab + b^2) - m^2$

iii) If $x + \frac{1}{x} = P$ Find the value of $x^2 + \frac{1}{x^2}$ in terms of P.

iv) Expand and simplify $(3x - 2y)(x + 2y)$

- 08) a) The figure shows a pie chart indicating the time allocated for various activities in a day by kumar



- Find the magnitude of the central angle of the sector that represents the time allocated to play.
 - Find the time allocated by kumar to sleep.
 - If kumar spent two hours from his sleeping time to prepare for the examination, Find the magnitude of the central angle of the sector represents the study time according to the above change.
- b) Kumar starts saving money by putting Rs.20 into his saving box in January, After that he put money into his saving box, Once a month put Rs 5 more than the previous month.
- Write the amounts he put into the box in first four months separately.
 - Find the general term of this progression.
 - Find the amount of money he put into the money box in the last month of the year.