



Mn / Sithyvinayakar Hindu College

(National School – Mannar)

First Term Exam - 2019

Mathematics

Grade - 10

Index No -

Time -3 Hour

- **Part-I** has **20** questions each carries 02 marks.
- **Part – II A** and **Part – II B** has **Four** question each, answers any **Three** questions from each part each question carries 10 marks.

Part – 1

- **Answer the all question on this paper it self**

1. If a vendor sold Rs 200 worth book to Rs 250. Find the profit.

2. Write the next two terms of 7,13,19, ,

3. Write in ascending order $\frac{4}{5}, \frac{17}{20}, \frac{3}{4}, \frac{7}{10}$

4. Find the value of x, if $2x-7=5$

5. Simplify $\frac{x}{x-4} - \frac{4}{x-4}$

6. $A = \{\text{Odd numbers between 0 and 15}\}$, Write the set A as listing of elements.

7. Write 20% of an hour in minutes.

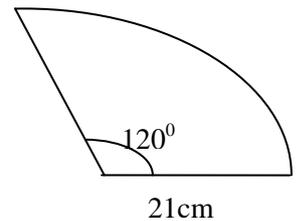
8. Give the capacity of a cuboid vessel of length, breadth and height 30 cm 20cm and 25cm respectively in liters.

9. Write all the positive integer solutions of the inequality $3x - 5 < 9$

10. If $A:B = 2:5$, $B:C = 2:3$ Find $A:B:C$

11. Find $\sqrt{576}$ by division method

12. Find the length of the arc of radius 21cm and angle at the center of the sector 120°



13. What is the gradient of a straight line passing through the points (2,5) , (5,11).

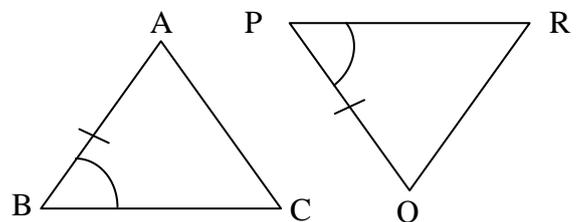
14. Find the probability of getting an even prime number when throwing a fair dice numbered from 1 to 6

15. Factorize $9m^2 - 4n^2$

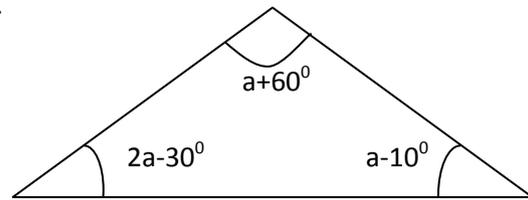
16. If $PQ = AB$ and $\hat{A}BC = \hat{Q}PR$,

i. Find the third conditions for the congruency

ii. In which case both triangle are congruency

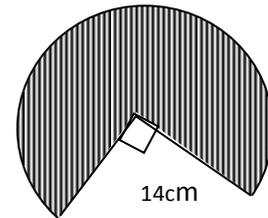


17. What is the magnitude of largest angle in the triangle.

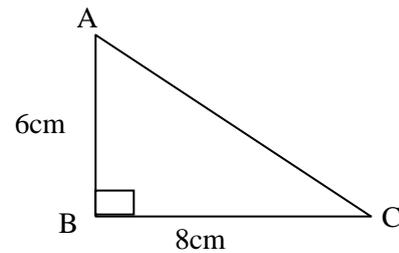


18. Factorize $ax - ay + 2y - 2x$

19. Find the area of shaded part of a sector of radius 14cm



20. Find the perimeter of triangle ABC



Part – II A
Answer any Three questions.

01. A man gave $\frac{4}{7}$ of a plot land to his wife and $\frac{1}{7}$ to his son, $\frac{1}{6}$ of the remaining land to his daughter. If 20 acres remaining with him.

- What fraction of the total plot of land gave to his wife and son?
- What fraction of the total plot of land gave to daughter?
- Write the remaining portion as fraction of the whole land?
- Find the area of the land which man had initially in acres.

$2 + 2 + 2 + 4 = 10$ Marks

02. To draw the graph $y - 4x = 2$

- i) Make y as subject
- ii) Complete the table.

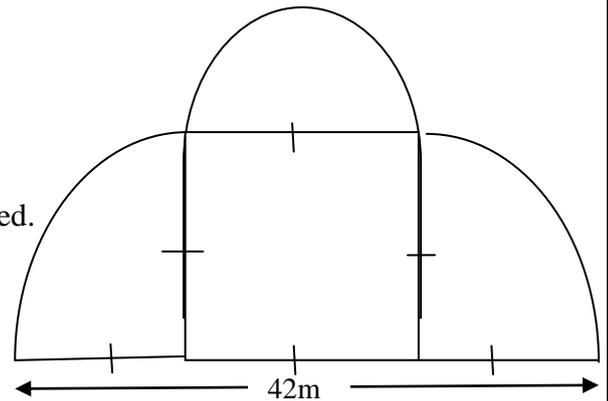
x	-2	-1	0	1	2	3
y						

- iii) Using suitable scale and draw the graph.
- iv) Find the intercept of above graph
- v) Find the gradient of above graph.
- vi) If the above graph passes through (f,8) Find the value of "f" from graph

$$1 + 2 + 3 + 1 + 1 + 2 = 10 \text{ Marks}$$

03. A wedding hall complex was designed by a craftsman with a square hall containing a semi circular stage and two quarter circular car parks each beside of the stage as shown here.

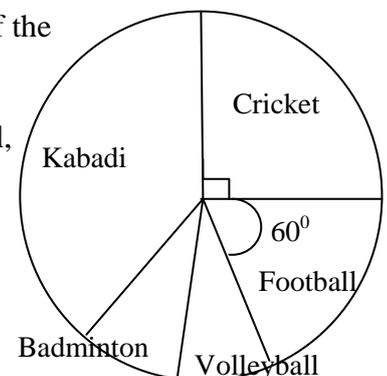
- i) Find the radius of the semi circular stage.
- ii) Find the length of the semi circular arc.
- iii) Find the length of a quarter circular arc.
- iv) Find the perimeter of the complex.
- v) If the semi circular stage has been covered by red carpet . Find the minimum area of the carpet needed.
- vi) If the price of 1m^2 red carpet is Rs.275. Find the total cost?



$$1 + 2 + 2 + 2 + 2 + 1 = 10 \text{ Marks}$$

04. A survey between 900 secondary students of our school about the game they like , given below

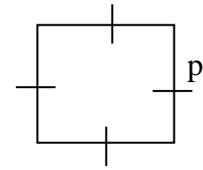
- i) How many students like cricket
- ii) If 275 students like kabadi, find the magnitude of angle at the center of the sector that denote kabadi in the above diagram.
- iii) If the number of students who like volley ball and badminton are equal, find the angle at the center of the sector which denote badminton.
- iv) How many students like to play volleyball
- v) What is the ratio between the students who play kabadi and football, write the ratio in simplest form.



$$2 + 2 + 2 + 1 + 3 = 10 \text{ Marks}$$

Part – II B
Answer any Three questions.

05. Ravi decided to make a rectangular notice board from a square piece of wood of length “p” units, he cut 2 units and 5 units respectively to make the rectangular board.



- i) Draw a diagram and denote the dimension of rectangle.
- ii) Write the area of the rectangle as a product of two binomial expressions and expand it
- iii) Factorize $3a^2 - 11a + 10$
- iv) If $x + y = 7$, $xy = 16$, then find $x^2 + y^2$

1 + 2 + 3 + 1 + 1 + 2 = 10Marks

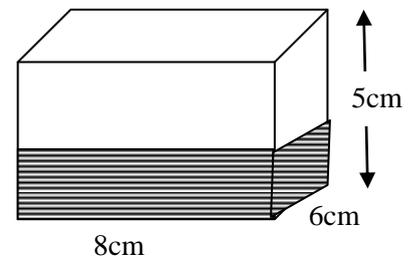
06. Using only straight edge with a scale cm/mm and a pair of compasses and showing the construction lines clearly

- i) Construct the triangle ABC where $AB = 10\text{cm}$, $\widehat{ABC} = 60^\circ$ and $BC = 5\text{cm}$
- ii) Draw the locus of the point moving equal distance from AB and BC
- iii) Draw the locus of the point moving equal distance from A and C .
- iv) Name the intersecting point of the above locus (iii) and AB as X .
- v) Draw a circle with center X and radius XC .
- vi) Measure and write the radius of the circle.

3 + 2 + 2 + 1 + 1 + 1 = 10Marks

07.

- I. In the number pattern 3,7,11,15.....
 - a) Find the general term
 - b) Find the fifteenth term



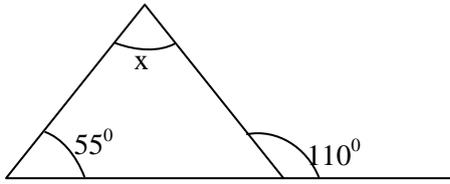
- II. In the cuboid shaped tank water is filled up to the height of 3cm
 - a. Find the capacity of the tank
 - b. Find the volume of water in the tank

III. It takes 6 men 4 day to complete half of a certain task. Find the number of days required to complete the remaining task when recruited 2 more men to work.

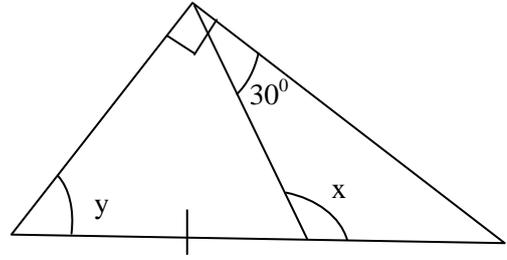
2 + 2 + 2 + 2 + 2 = 10Marks

08.

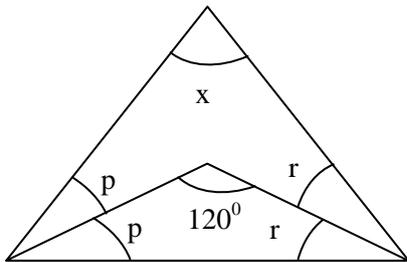
i. Find the value of x



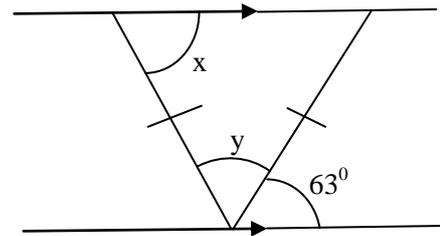
ii. Find the value of x and y



iii. Find the value of $p+r$ and x



iv. Magnitude of angle x and y



$2 + 3 + 3 + 2 = 10$ Marks