JAFFNA HINDU COLLEGE

First Term Exam - 2023

Grade - 09	Mathematics	Time: - 2 Hours

Name/Index No: ……

Part – I

❖ **Answer the all questions**

01) 12% of the students in a class are girls. If the number of girls is 6, find the total number of students in the class.

02) Fill the blank cage using binary number

1011_{two} - ☐ $= 110_{two}$

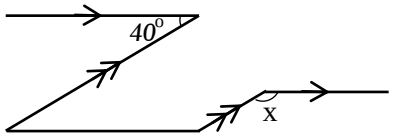
03) Solve :- *1* - $\frac{x}{2}$ = *4*

04) Find the 9^{th} term of a number pattern, if the general term is 7-2n

05) If x = ½, y = *(-2)* find the value of $4x^2$ - y.

06) How many meters is $\frac{1}{5}$ of 2.5km?

07) Find the magnitude of x?



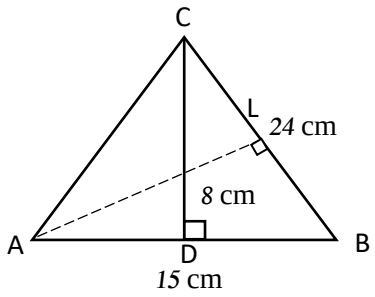
08) Factorize :- a(x – 1) – (1 – x)

09) Find the value of $\sqrt{3^2 X\ 5^2}\ X\ 7^2$

10) Simplify :- (-2) + (-4) x (-7)

11) Find the probability for getting square number, when throwing a regular die numbered 1 to 6

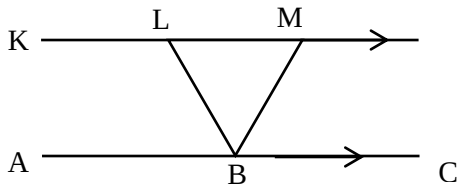
12) If AB =15cm, BC = 24cm and DC =8cm, find the length of AL.



13) If the 7^{th} term of an arranged distribution is median, find the number of terms in this distribution.

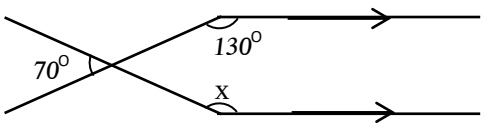
14) The base area of a cuboid container is $60m^2$, water filled up to the height of 0.5m. Find the volume of water.

15) If $A\hat{B}M = L\hat{B}C$ and $L\hat{B}M = 40^o$ .Find $K\hat{L}B$



16) 8% commission charged when selling a motor bike at Rs.500000. Find the amount of commission.

17) Find the magnitude of x



18) Find the value using your knowledge in factors $78^2 - 22^2$

19) Convert 43 as a binary number

20) Expand and simplify :- $(y - 6)^2$

Part – II

❖ **Answer any five question**

(01)

(a) Simplify :- $\frac{2\frac{1}{3}+\frac{1}{5}}{\frac{7}{9}}$

(b) A farmer cultivated brinjal in $\frac{2}{5}$ of his whole land and cultivated ladies finger in $\frac{1}{6}$ of the remaining land.

i. Find the fraction of whole land remaining after cultivated brinjal.

ii. Find the fraction of whole land ladies finger cultivated.

iii. He cultivated banana in remaining land. Find the fraction of land cultivated banana.

iv. If the area of land cultivated brinjal and ladies finger is 4 ha, find the area of land banana cultivated.

v. If the value of one hectare land is Rs.300000, find the area of whole land.

(02)

Above patterns made by using circular and triangular shapes.

i. Write the number of circular shapes and triangular shapes in first four patterns separately.

ii. By considering the triangular shape pattern, write down the n^{th} term.

iii. Write down the n^{th} term of the circular shape pattern.

iv. Find the number of triangles in 15^{th} patterns.

v. The total number of triangular shape is 37 in all patterns.

(a) Find the number of patterns arranged.

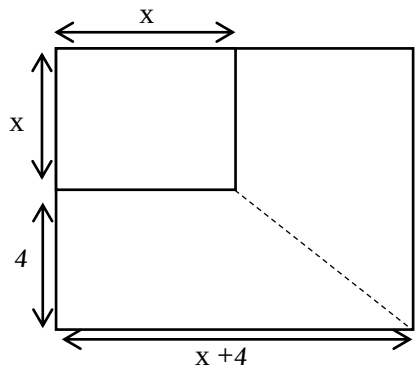
(b) Find the number of circular shapes in all patterns

(03)

(a)

i. Remove the bracket and simplify $5(m + n) – m – n$

(b) Simplify:- $(4 – p)(p + 4)$



A square of side length x unit has removed from a square lamina of side length x + 4 unit.

I) write an algebraic expression for the area of remaining part?

II) Remaining lamina cut along broken line and a rectangle made using two parts. Draw the sketch of rectangle with measurements.

III) Write an expression for the area of rectangle obtained above in (II)

(c) Factorize

I) $8x^2 - \frac{1}{2}$ II) $35 - 12k^2 + k^2$

(04) The advertisements of two shops given below

A	B
Rs.200 discount allow for frocks worth Rs.1000	20% discount for all frocks

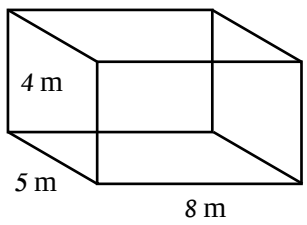
i. Find the percentage of discount given in shop A

ii. How much have to pay for a frock of worth Rs.4000 in shop B?

iii. In shop A, a frock sold at Rs.7200, find the marked price.

iv. In shop B, a frock sold with 20% profit. If the selling price is Rs.4800, find the buying price.

(05)



A cuboid shape tank of length 8m, breadth 5m and height 4m shown in this diagram.

i. Find the capacity in liters.

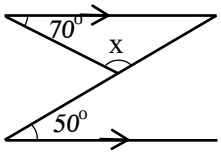
ii. If water filled up to the height 1.5m, find the volume of water.

iii. If the price of one liter water is Rs.4, find the value of whole water.

iv. If cement layer pasted 5cm height from the base to recover from leakage. Find the reduction in capacity.

(06) Find the values represented by alphabets.

i.



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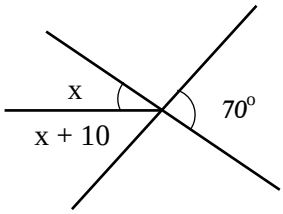

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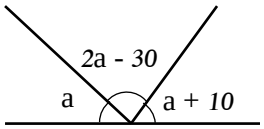

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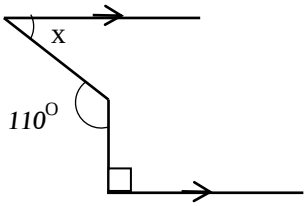
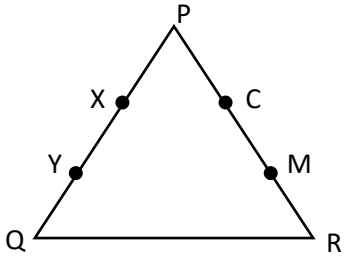


v. In the given figure PX = XY = YQ, PL = LM = MR and PX = PL. Show that PQ = PR using axioms.



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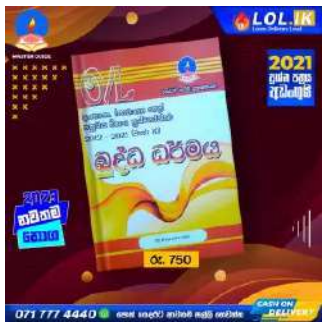

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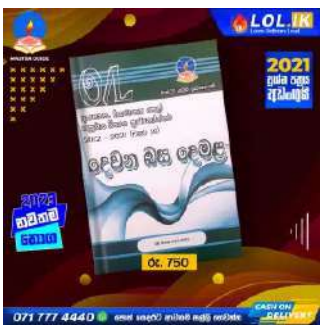

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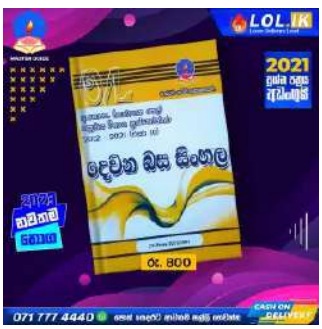

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