

ගණිතය - I, II Duration :- 2 hours
Mathematics - I, II

Name :- Index No :- Grade 9

Part I

• Answer all the questions.

1) Write common differences from the number pattern of 7, 9, 11, 13...

2) Consider the general term $T_n=2n-1$ and find the 20th term.

3) Write decimal number of 51 as a binary number.

4) Find the value of
 $1101_{two} + 111_{two}$

5) Find the value of
 $110011_{two} - 10001_{two}$

6) If the value of $\frac{1}{5}$ of money is Rs.300.Find its total amount of money.

7) If the buying price of a good is Rs.900.In order to get a profit of 5%, calculate the marked price.

8) Marked price of a certain good is Rs.1500 with a discount of 10%, what is the selling price after the discount?

9) The length of a rectangle is twice its breadth and 3cm.Write an expression for its area.

10) Find the value of

$$\left(\frac{1}{5} + \frac{3}{10} \right) \text{ of } \frac{1}{5}$$

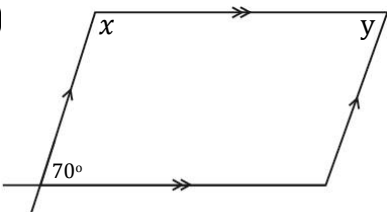
11) Factorize

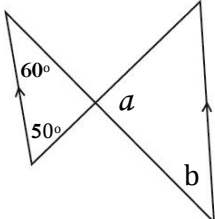
$$x^2 + 10x - 4x - 20$$

12) Factorize
 $1-100y^2$

13) Find the value of $\frac{1}{5}$ of 1kg.

14) Find the value of $5-8m$, when $m = (-\frac{1}{2})$

15)  Find the value of x and y .

16)  Find the value of a and b .

17) Simplify. $(x - 2)(x + 3)$

18) When selling a vehicle worth of Rs.3 000 000 with Rs.60 000 as a commission for the broker. Calculate the percentage of the commission.

19) The length, breadth and height of a certain container are 10cm, 8cm and 5cm respectively. Find the capacity of the tank in milliliters.

20) Find the number which should be both square number and triangular number between 1 and 50.

Part II

• Answer only Six questions

01) (A) Simplify.

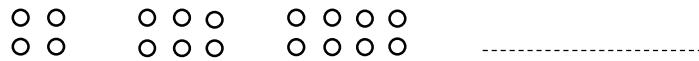
i. $1\frac{2}{7}$ of $(2\frac{2}{3} - 1\frac{1}{2})$

ii. $\frac{2}{3} \times \frac{3}{5} + 1\frac{1}{10}$

(B) A person gives $\frac{1}{3}$ of his money to his wife, half of the remaining to his two children equally Donated. $\frac{1}{4}$ of remaining money is given for charity.

- What is the money received by one child from the whole amount?
- Which amount of money is given to the Charity from the whole amount?
- If the amount of money given to the charity is Rs.1000. find the whole amount.

02) (A)



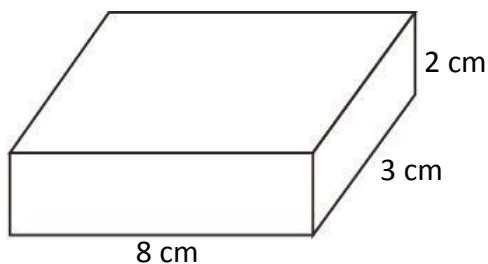
- Form the next 4th pattern.
- Find the General term of this number pattern.

B. The general term of a number pattern is

$$T_n = 5 - 2n$$

- Find the 20th term.
- Which term is equal to (-45).
- Find the (n+1) term in terms of 'n'.

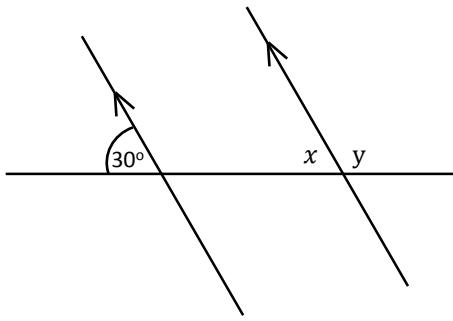
03) (A) Find the capacity in milliliters.



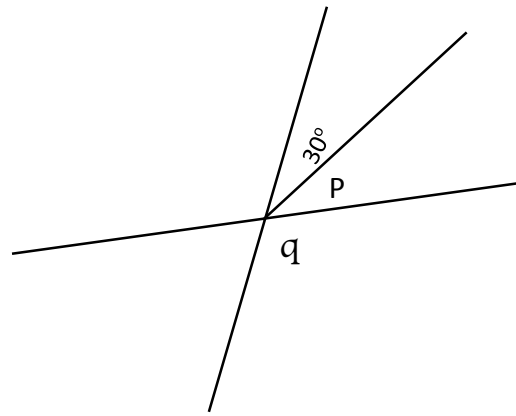
(B) The length, breadth and height of a certain water tank are 10m, 8m, and 4m respectively.

- Find the capacity of the tank in liters.
- Determine the capacity in liters in the water tank if the tank is filled with water only up to a height 1.5m.
- Determine the volume of water required to fill the whole tank.
- The volume of water already filled in the tank poured into cuboid shaped tank with base area of 60m². Find the height of the water in the cuboid shaped tank.

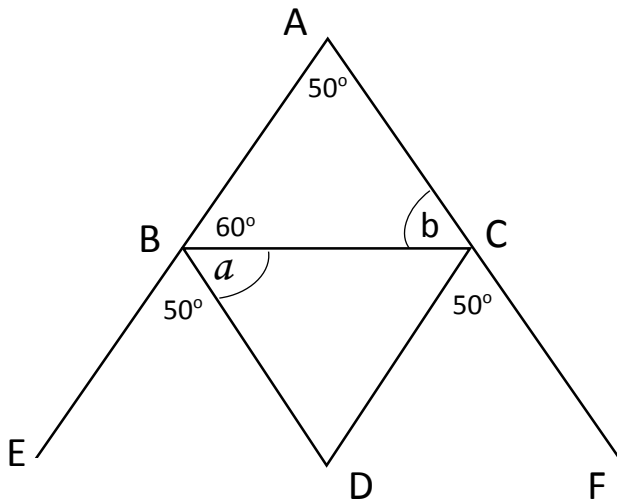
04)



Find the magnitude of the \hat{x} and \hat{y}



Find the magnitude of \hat{p} and \hat{q}



Find the magnitude of a and b
If $BD \parallel AC$ Show that $AB \parallel DC$

05) (a). Find the value of the expression when

$$x = (-2) \text{ and } y = 3$$

i. $2x - 3y$

ii. $\frac{x}{2} - \frac{y}{3}$

(b). Factorize.

i. $2x^2 - 7x + 6$

ii. $6x^2 + 2y^2 - 4xy - 3xy$

iii. Factorize and find the value.

$$103^2 - 3^2$$

06) (a)

If a vender earns a profit of 15% by selling goods at the price of Rs.6440.Find the price at Which the vender brought the goods.

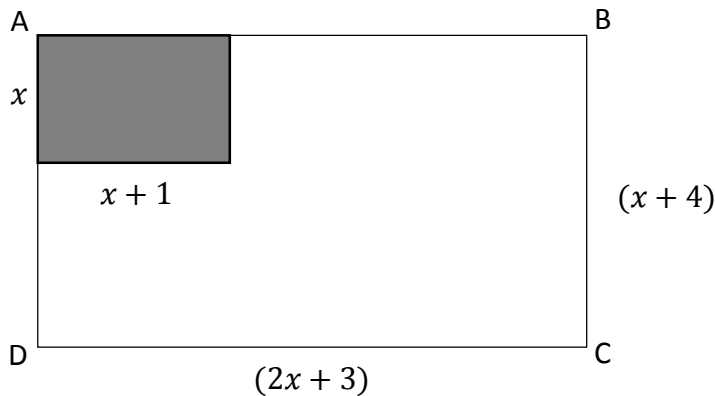
(b)

A book shop
A discount of 10% on All purchases of books.

B book shop
A reduction of Rs.200 on all Purchase of value greater than Rs.2000.

- I. How much is needed to be paid by Hemali when purchasing books of price Rs.3000 From A book shop?
- II. How much is needed to be paid by Achini when purchasing a book of price Rs.2500 From B book shop?
- III. How much is needed to be paid by Achini when purchasing a same book from A Book shop.
- IV. Is it more beneficial for the Achini to buy books from shop A or from shop B?

07)



From the given figure cut off the coloured area from ABCD rectangular lamina.

- i. Write the expression and expand it for the area of the ABCD Rectangular lamina.
- ii. Write the expression and expand it to the coloured area.
- iii. Determine the algebraic expression for the remaining part of the rectangular lamina.

(b) Remove the brackets and simplify.

- 1) $(x-3)(x-2)$
- 2) $(2x+1)(x-3)$