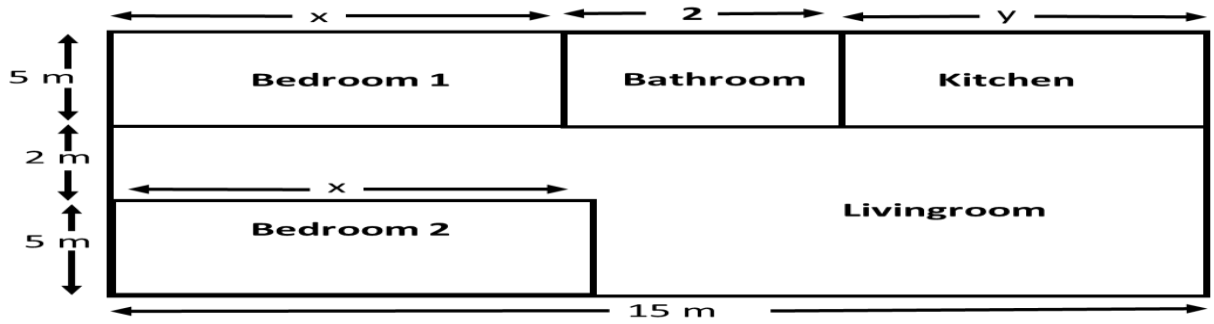
CLASS-X (MATHS) CBA SYLLABUS JULY-2024

- **PAIR OF LINEAR EQUATIONS IN TWO VARIABLES**
- **QUADRATIC EQUATIONS**

Case Study 1:-

Ramesh is planning to buy a house whose layout is given below. The design and the measurement has been made such that area of two bedrooms and kitchen together is 95 m^2 .



On the basis of above information answer the following questions.

(1) The pair of linear equations in two variables from this situation is

(A)2x +y = 19, x+y = 13

(B) x +2y = 19, x+y = 13

(C) 2x +y = 13, x+y = 13

(D) 2x +y = 13, x+y = 19.

(2) The perimeter and of the house are respectively

(A)54 m ,180 m^2

(B) 180 m ,54 m^2

(C) 27m ,90 m^2

(D) 108 m ,180 m^2

(3) The value of xy is

(A)48

(B) 42

(C) 49

(D) 13

(4) The value of x- y is

(A)13

(B) 1

(C) -1

(D) 42

(5) The cost of laying tiles in the kitchen at the rate Rs. 70 per m^2 is

(A)Rs 1750

(B) Rs. 2400

(C) Rs.2550

(D) Rs. 2450

ANSWER

(1) (A)2x +y = 19, x+y = 13

x+2+y = 15 and 5x+5x +5y =95 $\Rightarrow$ 2x +y = 19 and x + y = 13

(2) (A)54 m ,180 m^2

Perimeter= 2 (15+12) = 54 m ,Area = 15 x 12 =180 m^2

(3) (B) 42

Solving : 2x +y = 19, x+y = 13 x=6,y=7 Therefore xy =42.

(4) (C) -1

x=6,y=7 Therefore x - y = -1

(5) (D) Rs. 2450

Total cost of laying tiles =70 x 5 y = 70 x 35 = Rs. 2450

Case Study 2:-

Raj and Ajay are very close friends. Both the families decide to go Ranikhet by their own cars. Raj's car travels at a speed of x km/h while Ajay's car travels 5 km/h faster than Raj's car. Raj took 4 h more than Ajay to complete the journey of 400 km.

(6) What will be the distance covered by Ajay's car in 2 hours?

(A)2(x+y) km

(B) (x-y) km

(C) 2(x+10) km

(D) (2x+y) km

(7) Which of the following quadratic equation describe the speed of Raj's car?

(A)x^2 -5x -500 =0

(B) x^2 + 4x -400 =0

(C) x^2 + 5x -500 =0

(D) x^2 -4x +400 =0

(8) What is the speed of Raj's car?

(A)20 km/h

(B) 15 km/h

(C) 25 km/h

(D) 10 km/h

(9) What is the speed of Ajay's car?

(A)20 km/h

(B) 15 km/h

(C) 25 km/h

(D) 10 km/h

(10) How much time took Ajay to travel 400 km?

(A)20 h

(B) 40 h

(C) 25 h

(D) 16 h

ANS:

(6) (A)2(x+y) km

Distance = Time x Speed = 2 (x + y) km

(7) (C) $x^2 + 5x - 500 = 0$

$\frac{400}{x} - \frac{400}{x+5} = 4$

On simplify : $x^2 + 5x - 500 = 0$

(8) (A)20 km/h

On solving : $x^2 + 5x - 500 = 0$

$(x-20)(x+25) = 0$

$x = 20, x = -25$ (not possible)

(9) (C) 25 km/h

Ajay's car speed = $x+5 = 20+5 = 25$

(10) (D) 16 h

Time = $\frac{400}{25} = 16$ h