

Aptitude Assignment 1

1. The equations of the lines $x=2$ & $y=4$ meet at the point

Solution:

The equations of the lines $x=2$ & $y=4$ are both vertical and horizontal lines, respectively. These lines intersect at a single point, which is the point (2, 4).

2. Equations $2X+3Y=9$ & $7X+9Y=-6$ have how many solutions?

Solution:

$$x = -33 \text{ and } y = 25$$

Handwritten solution for the system of equations:

$$\begin{aligned} 2x + 3y &= 9 \rightarrow (1) \\ 7x + 9y &= -6 \rightarrow (2) \end{aligned}$$

① $\times (-3) \rightarrow -6x - 9y = -27$

② $\rightarrow 7x + 9y = -6$

$$x + 0 = -33$$

$$\boxed{x = -33}$$

Substitute (x) value in eqn (1)

$$\begin{aligned} 2(-33) + 3y &= 9 \\ -66 + 3y &= 9 \\ 3y &= 9 + 66 \\ 3y &= 75 \\ \boxed{y = 25} \end{aligned}$$

Solution: $x = -33$ $y = 25$

3. Equation $7x+9y=-5$ has how many keys?

Solution: one key

This solution deals with the properties of a straight line which is solved using $y = mx+c$. So, Slope= $1.556/2.000=0.778$

Notice that when $x = 0$ the value of y is $5/9$ so this line "cuts" the y axis at $y=0.55556$

$$\text{y-intercept} = -5/-9 = 0.55556$$

When $y = 0$ the value of x is $-5/7$ Our line therefore "cuts" the x axis at $x= -0.71429$

$$\text{x-intercept} = -5/7 = -0.71429$$

4. Equation $ax^2+bx+c=0$ will be for $a=b=c=0$.

Solution:

$ax^2 + bx + c = 0$
 for $a = b = c = 0$
 $(0)x^2 + 0(x) + 0 = 0$
 Answer will be zero.

5. Income of A & B is in ratio 2:3. For example, if B's income is Rs 3000, find out the ratio of their expenditures if their savings are Rs 500 & Rs 700, respectively.

Solution: 15:23

$A : B = 2 : 3$
 Consider income of person A as $2x$
 income of person B as $3x$
 $A : B = 2x : 3x$
 B income is Rs 3000
 then $3x = 3000$
 $\boxed{x = 1000} \rightarrow (1)$
 Income of A $= 2x = 2 \times 1000 = 2000$.
 Expenditure of A $= \text{Income of A} - \text{Savings of A}$
 $= 2000 - 500$
 $= 1500 \text{ Rs.}$

Same A,

$$\text{Income of B} = 3x = 2(1000) = 2000$$

$$\begin{aligned}\text{Expenditure of B} &= \text{Income of B} - \text{savings of B} \\ &= 2000 - 700 \\ &= 1300 \text{ Rs.}\end{aligned}$$

$$\begin{aligned}\text{So Expenditure of A : Expenditure of B} &= 1500 : 1300 \\ &= 15 : 13\end{aligned}$$

Ans: 15:13