**Aptitude Assignment 1**

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

The lines x=2 and y=4 are indeed perpendicular lines and intersect at the point (2, 4).

The line x=2 is a vertical line passing through the point (2, y) for any value of y.

The line y=4 is a horizontal line passing through the point (x, 4) for any value of x.

The point (2, 4) is where these two lines intersect.

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

1. 2X + 3Y = 9-----1

2. 7X + 9Y = -6------2

We can use the method of elimination or substitution to find the solution. Let's use elimination:

Step 1: Multiply the first equation by 3 and the second equation by 1 (to make the coefficients of Y in both equations equal):

1. 6X + 9Y = 27

2. 7X + 9Y = -6

Step 2: Now, subtract the second equation from the first equation:

(6X + 9Y) - (7X + 9Y) = 27 - (-6)

-X = 33

Step 3: Divide both sides by -1:

X = -33

Step 4: Substitute the value of X in any of the original equations to find Y. Let's use the first equation:

2X + 3Y = 9

2(-33) + 3Y = 9

-66 + 3Y = 9

3Y = 9 + 66

3Y = 75

Step 5: Divide both sides by 3:

Y = 25

So, the solution to the system of equations is X = -33 and Y = 25.

Since we have found unique values for both X and Y, the system has a single unique solution. Therefore, there is only one solution to the given system of equations.

1. **Equation ax^2+bx+c=0 will be ............. for a=b=c=0 .**

The equation ax^2 + bx + c = 0 represents a quadratic equation.

When a = b = c = 0, it means that all the coefficients of the quadratic equation are zero. In this case, the equation simplifies to:

0x^2 + 0x + 0 = 0

This equation becomes:

0 = 0

The equation 0 = 0 is an identity. It means that it is always true, regardless of the value of x.

In summary, when a = b = c = 0, the quadratic equation ax^2 + bx + c = 0 becomes an identity equation 0 = 0, which is always true.

1. **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.**

Let's assume the income of person A is 2x (in Rs) and the income of person B is 3x (in Rs), where x is a constant.

According to the given information, if B's income is Rs 3000, then:

3x = 3000

Now, we can solve for x:

x = 3000 / 3

x = 1000

So, person A's income (2x) is 2 \* 1000 = Rs 2000, and person B's income (3x) is 3 \* 1000 = Rs 3000.

Next, let's calculate their expenditures and savings:

Let the expenditure of person A be y (in Rs) and the expenditure of person B be z (in Rs).

Given that their savings are Rs 500 and Rs 700, respectively:

Savings of person A = Income of A - Expenditure of A = Rs 2000 - y = Rs 500

Savings of person B = Income of B - Expenditure of B = Rs 3000 - z = Rs 700

Now, we can solve for y and z:

1. Rs 2000 - y = Rs 500

y = Rs 2000 - Rs 500

y = Rs 1500

2. Rs 3000 - z = Rs 700

z = Rs 3000 - Rs 700

z = Rs 2300

So, the expenditure of person A is Rs 1500, and the expenditure of person B is Rs 2300.

Finally, we can find the ratio of their expenditures:

Ratio of expenditures = Expenditure of A : Expenditure of B = Rs 1500 : Rs 2300

Now, we can simplify this ratio:

Ratio of expenditures = 15 : 23

Therefore, the ratio of their expenditures is 15:23.