Excel Coaching Classes

Test Name: Linear Equations in Two Variables **Subjects:** Mathematics Part - I

Marks: 20 **Standard:** X School English Maharashtra State Board

Duration: 60min

Chapter Details

Mathematics Part - I : Linear Equations in Two Variables

Q.1(A) Choose the correct alternative. **(4)**

i If $x + y = 10$ and $x - y = 12$, then

(A) $x = 11, y = 1$ (B) $x = 11, y = -1$

(C) $x = -11, y = 1$ (D) $x = -11, y = -1$

ii For simultaneous equations in variables x and y, $D_x = 49$, $D_y = -63$, $D = 7$ then what is x?

(A) 7 (B) –7

(C) $\frac{1}{7}$ (D) $\frac{-1}{7}$

iii The value of m for which the value of the determinant $\begin{vmatrix} -3 & m \\ -5 & -4 \end{vmatrix}$ is –18 is

(A) 3 (B) –3

(C) 6 (D) –6

iv If the point (m, 11) lies on the graph of the equation $11x - 5y = 11$, then the value of m is

(A) 8 (B) 7

(C) 9 (D) 6

Q.1(B) Solve the following questions. **(2)**

i Find the value of each of the following determinant.

$\begin{vmatrix} 4 & 3 \\ 2 & 7 \end{vmatrix}$

ii If $15x + 17y = 21$ and $17x + 15y = 11$, then find the value of $x + y$.

Q.2 Solve the following questions.(Any two) **(4)**

i Solve the following simultaneous equations.
$x + 7y = 10; 3x - 2y = 7$

ii Two numbers differ by 3. The sum of twice the smaller number and thrice the greater number is 19. Then the Smaller number is.

(A) – 5 (B) –2

(C) 2 (D) 5

iii Solve the following equations by Cramer's method.

$7x + 3y = 15; 12y - 5x = 39$

Q.3 Complete the following activity. **(3)**

i The ages of Durga and Hari are in the ratio 5:7. After eight years, the ratio of their ages will be 3:4. Find their present ages.

Let the present ages of Durga and Hari be x years and y years respectively.

$\therefore$ According to the first condition, the ages of Durga and Hari are in the ratio 5 : 7.

$\therefore$ $\square = \frac{5}{7}$

$\therefore$ $\square$ …(i)

After eight years,

Age of Durga = $(x + 8)$ years

Age of Hari = $(y + 8)$ years

According to the second condition, after 8 years, the ratio of their ages will be 3 : 4.

$\therefore$ $\frac{x+8}{y+8} = \square$

$\therefore$ $\square$ …(ii)

Multiplying equation (i) by 3 and equation (ii) by 5, we get

$21x - 15y = 0$ …(iii)

$20x - 15y = -40$ …(iv)

Subtracting equation (iv) from equation (iii) Present age of Durga is $\square$ years and that of Hari is $\square$ years.

Q.4 Solve the following questions.(Any one) **(3)**

i Sum of the present ages of Manish and Savita is 31. Manish's age 3 years ago was 4 times the age of Savita. Find their present ages.

ii Solve the following simultaneous equations.

$99x + 101y = 499; 101x + 99y = 501$

Q.5 Solve the following questions.(Any one) **(4)**

i Kantabai bought $1\frac{1}{2}$ kg tea and 5 kg sugar from a shop. She paid ₹ 50 as return fare for rickshaw. Total expense was ₹ 700. Then she realised that by ordering online the goods can be bought with free home delivery at the same price. So, next month she placed the order online for 2 kg tea and 7 kg sugar. She paid ₹ 880 for that. Find the rate of sugar and tea per kg.

ii Convert the following equations into simultaneous equations and solve:

$\sqrt{\frac{x}{y}} = 4, \frac{1}{x} + \frac{1}{y} = \frac{1}{xy}$