7058427775

RISE UP अॅकॅडमी

इयत्ता : 5 वी ते 10 वी

आदर्श कॉलनी, औसा रोड, बरमदे हॉस्पिटल जवळ, लातूर

Class: 10 English / Semi-English (State) | Subject : Algebra | Total Marks: 20

Date: | Chapter: Linear Equations in two variables | Time: 1 Hr

10th Algebra 20 Marks

Q.1) A) Choose the correct alternative for the following questions [02]

1) Which of the following is not a linear equation in two variables x and y?

a) $5x - 2y = 8$ b) $3x - 2y + 0z = 15$ c) $5x + \frac{4}{y} = 8$ d) $3x + 8y = 15$

2) For drawing the graph of $5x + 2y = 16$, if $x = 2$, what is the value of y?

a) $\frac{11}{2}$ b) 8 c) 3 d) $\frac{14}{5}$

Q.1) B) Solve the following questions [01]

1) Find the value of : $\begin{vmatrix} \frac{75}{33} \\ \frac{31}{22} \end{vmatrix}$

Q.2) A) Complete any one activity [02]

1) Solve the following equation: Given $\frac{1}{x} + \frac{1}{y} = 8$ and $\frac{4}{x} - \frac{2}{y} = 2$.

Replacing $\frac{1}{x} = m$ and $\frac{1}{y} = n$.

Then the equations □ and

$4m - 2n = 2$.

Solving, we get $m = 3$,

$n =$ □. So $\frac{1}{x} = 3$, $\frac{1}{y} =$ □,

therefore $x = \frac{1}{3}$, $y =$ □ .

2) The difference between two numbers is 26 and one number is three times the other. Find the numbers.

Solution: There are one number is □ and other number is □

The difference between two numbers is □

$\therefore$ x – y = 26------ (i) ;

one number is three times the other $\therefore$ x = 3y ----- (ii)

Now, solving these equations, we get, x = □ and y = □

Q.2) B) Solve any One sub question [02]

1) Solve the following simultaneous equation : 2x+3y=7 ; 3x-y=5

2) Solve the following simultaneous equation : x+11y=1 ; 8x+13y=2

Q.3) A) Complete any One activity [03]

1) 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.

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

∴ □ = $\frac{5}{7}$ ⇒ □ ------- (i)

After 8 years, age of Durga = (x + 8) years and age of Hari = (y + 8) years

According to second condition,

$\frac{x+8}{y+8}$ = □ ⇒ □---------- (ii)

Solving equation (i) and (ii), we get Durga's present age □ years and Hari's present age □ years.

2) Solve the following simultaneous equation :

$\frac{2}{x} + \frac{1}{y} = 5$; $\frac{3}{x} - \frac{1}{y} = 5$

Solution: put $\frac{1}{x}$ = a and $\frac{1}{y}$ = b

∴ a + b = 5 ----- (i) and 3a - b = 5 ----- (ii)

Solving equations (i) and (ii), we get, a = □ and b = □

Since, $\frac{1}{x}$ = a and $\frac{1}{y}$ = b ⟹ ∴ x = □ and y = □

Q.3) B) Solve any One sub questions [03]

1) Solve the following simultaneous equation by Crammer's rule

$2x + 3y = 2; x - \frac{y}{2} = \frac{1}{2}$

2) Solve the following simultaneous equation by Crammer's rule

$\frac{x+y-8}{2} = \frac{x+2y-14}{3} = \frac{3x-y}{4}$

Q.4) Solve any One sub questions [04]

1) Solve the following simultaneous equation

$\frac{7}{2x+1} + \frac{13}{y+2} = 27; \frac{13}{2x+1} + \frac{7}{y+2} = 33$

2) Solve the following simultaneous equation

$\frac{7x-2y}{xy} = 5; \frac{8x+7y}{xy} = 15$

Q.5) Solve any One sub question [03]

1) Sum of the ages of mother and her daughter is 60 years. After 15 years mother's age will be twice as that of her daughter's age at that time. Find their present ages.

2) Solve the following simultaneous equations using Crammer's rule:

$y = \frac{5x-10}{2}; 4x + y = -5$