

PRERNA EDUCATION

IIT/ MEDICAL/ FOUNDATION

SAMPLE QUESTIONS

LINEAR EQUATION IN TWO VARIABLES

Q.No. 1 Find whether the given system of equations has a unique solution, no solution or infinitely

many solutions:

$$x + y = 3, \quad 2x + 5y = 12$$

(a) Many Solution

(c) No Solution

(b) Unique solution

(d) Can't be determined

Ans. (b)

Q.No. 2 For what value of K, equations $3x - 4y = 5$, $9x + ky = 15$ has many solutions?

(a) K = 12

(b) K = 10

(c) K = -12

(d) K = 0

Ans. (c)

Q.No. 3 Find the values of α and β for which the following system of linear equations has infinite number of solutions. $2x + 3y = 7$, $2\alpha x + (\alpha + \beta)y = 28$

(a) $\alpha = 4, \beta = 8$

(b) $\alpha = -4, \beta = -8$

(c) $\alpha = 4, \beta = 5$

(d) $\alpha = 0, \beta = 0$

Ans. (a)

Q.No. 4 The sum of two numbers is 100 and the difference between their squares is 256000. Find the numbers.

(a) 628,327

(b) 628,372

(c) 327,862

(d) 342,628

Ans. (b)

Q.No. 5 Sum of two numbers is 35 and their difference is 13 then the number would be ?

(a) 21, 11

(b) 13, 14

(c) 24, 11

(d) 13, 11

Ans. (c)

Q.No. 6 The Solution of $x - y + 1 = 0$ & $4x + 3y - 10 = 0$, will be

(a) 1, -2

(b) 1, 2

(c) -1, -2

(d) -1, 2

Ans. (b)

Q.No. 7 Find the four angles of a cyclic quadrilateral ABCD in which $\angle A = (2x - 5)^\circ$, $\angle B = (y + 5)^\circ$, $\angle C = (2y + 15)^\circ$ and $\angle D = (4x - 7)^\circ$.

(a) $\angle A = 65^\circ, \angle B = 55^\circ$

$\angle C = 115^\circ, \angle D = 35^\circ$

(c) $\angle A = 125^\circ, \angle B = 55^\circ$

$\angle C = 115^\circ, \angle D = 65^\circ$

(b) $\angle A = 125^\circ, \angle B = 115^\circ$

$\angle C = 55^\circ, \angle D = 65^\circ$

(d) $\angle A = 65^\circ, \angle B = 55^\circ$

$\angle C = 115^\circ, \angle D = 125^\circ$

Ans. (d)

Q.No. 8 I am 3 times as old as my son. 5 years later, I shall be two and a half times as old as my son. How old am I and how old is my son?

- (a) 30,10
(c) 45,15

- (b) 60,20
(d) None of these

Ans. (c)

Q.No. 9 If 3 times the larger of the two numbers is divided by the smaller one, we get 4 as quotient and 3 as the remainder. Also, if 7 times the smaller number is divided by the larger one, we get 5 as quotient and 1 as the remainder. Find the numbers.

- (a) 25,15
(c) 18,6
- (b) 125,180
(d) None of these

Ans. (d)

Q.No. 10 Points A and B are 70 km apart on a highway. A car starts from A and another car starts from B at the same time. If they travel in same direction, they meet in 7 hours but if they travel in opposite direction, they meet in one hour. What are their speeds?

- (a) 40 km/hr
30 km/hr
- (b) 30 km/hr
50 km/hr
- (c) 40 km./hr
60 km./hr
- (d) 20 km/hr
30 km/hr

Ans. (a)

Q.No. 11 A 2-digit number is such that the product of its digits is 14. If 45 is added to the number, the digits interchange their places. Find the number.

- (a) 92
(b) 42
(c) 29
(d) None of these

Ans. (c)

Q.No. 12 Solution for $\frac{x}{a} + \frac{y}{b} = 2; ax - by = a^2 - b^2$

- (a) $x = -b, y = a$ (b) $x = a, y = -b$ (c) $x = -a, y = -b$ (d) $x = a, y = -b$

Ans. (b)

Q.No. 13 The denominator of a fraction is 4 more than twice the numerator. When both the numerator and denominator are decreased by 6, then the denominator becomes 12 times the numerator. Determine the fraction.

- (a) $\frac{7}{18}$ (b) $\frac{-7}{18}$ (c) $\frac{-7}{11}$ (d) None of these

Ans. (a)

Q.No. 14 The area made by lines $x - y = 1, 2x + y = 8$ and y -axis will be

- (a) 14 sq-units (b) 15 sq-units (c) 12.5 sq-units (d) 13.5 sq-units

Ans. (d)

Q.No. 15 A boat covers 32 km upstream and 36 km downstream in 7 hours. Also, it covers 40 km upstream and 48 km downstream in 9 hours. Find the speed of the boat in still water and that of the stream.

- (a) 10 km/hr
15 km/hr
- (b) 10 km/hr
2 km/hr
- (c) 15 km./hr
20 km./hr
- (d) 15 km/hr
3 km/hr

Ans. (b)

Q.No. 16 Find the area of trapezium formed by lines $2x + y = 2, 2x + y = 6, x = 0, y = 0$.

(a) 10 unit²

(b) 18 unit²

(c) 8 unit²

(d) 12 unit²

Ans. (c)

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