

PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

Q.1) If $\frac{2x+1}{3} + \frac{3y-1}{2} = 2$ & $\frac{3x-1}{2} + \frac{2y+1}{3} = 2$,

then

- (A) $x = 1, y = 2$ (B) $x = 1, y = 1$
(C) $x = 1, y = 1/2$ (D) $x = 1/2, y = 1/2$

Q.2) If $3ax + 2by = 5ab$ & $5ax - 3by = 2ab$, then

- (A) $x = b, y = a$ (B) $x = a, y = b$
(C) $x = y = a$ (D) $x = y = b$

Q.3) If $\frac{a}{x} - \frac{b}{y} = 0$ & $\frac{ab^2}{x} + \frac{a^2b}{y} = a^2 + b^2$, then

- (A) $x = y = b$ (B) $x = y = a$
(C) $x = a, y = b$ (D) $x = b, y = a$

Q.4) The value of k for which the equations $kx - 4y = 1$ and $3x + 2y = 4$ have a unique solution is

- (A) 0 (B) 1
(C) 2 (D) any non-zero value

Q.5) A earns 20% more than B but spends 20% less than B. If A saves Rs 960 and B saves Rs 200, then their incomes are

- (A) Rs. 2400, Rs. 2000
(B) Rs. 1200, Rs. 1100
(C) Rs. 1800, Rs. 1600
(D) Rs. 1400, Rs. 1300

Q.6) If we added 5 to the denominator and subtract 5 from the numerator of a fraction, it reduces to $\frac{1}{7}$. If we subtract 3 from the numerator and add 3 to its denominator, it reduces to $\frac{1}{3}$. The fraction is

- (A) $\frac{3}{4}$ (B) $\frac{4}{5}$
(C) $\frac{6}{7}$ (D) $\frac{7}{9}$

Q.7) The present age of a man is equal to the sum of the ages of his five children. Twelve years hence the sum of the ages of the children will be twice the age of their father. the present age of the father

- (A) 36 years (B) 37 years
(C) 38 years (D) 39 years

Q.8) A two-digit number is obtained by either multiplying the sum of the digits by 7 and adding 3 to the product, or by multiplying the difference of the digits by 18 and adding 1 to the result. The number is

- (A) 73 (B) 71
(C) 69 (D) 67

Q.9) The equations $3x - 5y + 2 = 0$, and $6x + 4 = 10y$ have :

- (A) No solution
(B) A single solution
(C) Two solutions
(D) An infinite number of solution

Q.10) If $29x + 37y = 103$, $37x + 29y = 95$ then :

- (A) $x = 1, y = 2$ (B) $x = 2, y = 1$
(C) $x = 2, y = 3$ (D) $x = 3, y = 2$

Q.11) If the system $2x + 3y - 5 = 0$, $4x + ky - 10 = 0$ has an infinite number of solutions then :

- (A) $k = \frac{3}{2}$ (B) $k \neq \frac{3}{2}$
(C) $k \neq 6$ (D) $k = 6$

Q.12) The graphs of $2x + 3y - 6 = 0$, $4x - 3y - 6 = 0$, $x = 2$ and $y = \frac{2}{3}$ intersects in :

- (A) Four points
(B) one point
(C) two point
(D) infinite number of points

Q.13) If in a fraction 1 less from two times of numerator & 1 add in denominator then new fraction will be :

(A) $2\left(\frac{x-1}{y+1}\right)$ (B) $\frac{2(x+1)}{y+1}$

(C) $\left(\frac{x}{y}\right)$ (D) $\frac{2x-1}{y+1}$

Q.14) If A : Homogeneous system of linear equations is always consistent. R : $x = 0, y = 0$ is always a solution of the homogeneous system of equations with unknowns x and y , then which of the following statement is true ?

(A) A is true and R is the correct explanation of A

(B) A is false and R is not a correct explanation of A

(C) A is true and R is false

(D) A is false and R true

Q.15) The pair of linear equations $3x + 7y = k, 12x + 2ky = 4k + 1$ do not have any solution if

(A) $k = 7$ (B) $k = 14$

(C) $k = 21$ (D) $k = 28$

Q.16) The pair of linear equations $7x - 3y = 4, 3x + \frac{k}{7}y = 4$ is consistent only when -

(A) $k = 9$ (B) $k = -9$

(C) $k \neq -9$ (D) $k \neq 7$

Q.17) The pair of linear equations $13x + ky = k, 39x + 6y = k + 4$ has infinitely many solutions if -

(A) $k = 1$ (B) $k = 2$

(C) $k = 4$ (D) $k = 6$

Q.18) The pair of linear equations $x + y = 3, 2x + 5y = 12$ has a unique solution $x = x_1, y = y_1$ then value of x_1 is -

(A) 1 (B) 2

(C) -1 (D) -2

Q.19) The pair of linear equations $x + 2y = 5, 3x + 12y = 10$ has -

(A) Unique solution

(B) No solution

(C) More than two solution

(D) Infinitely many solutions

Q.20) Three chairs and two tables cost Rs. 1850 Five chairs and three tables cost Rs. 1850. Then the total cost of one chair and table is -

(A) Rs.800 (B) Rs. 850

(C) Rs. 900 (D) Rs.950

Q.21) The number of solutions of the equation $2x + y = 40$, where both x and y are positive integers and $x \leq y$ is :

(A) 7 (B) 13

(C) 14 (D) 18

Q.22) John inherited \$25000 and invested part of it in a money market account, part in municipal bonds, and part in a mutual fund. After one year, he received a total of \$ 1620 in simple interest from the three investments. The money market paid 6% annually, the bonds paid 7% annually, and the mutual funds paid 8% annually. There was \$ 6000 more invested in the bonds than the mutual funds. The amount John invested in each category are in the ratio :

(A) 15 : 8 : 2 (B) 11 : 13 : 1

(C) 2 : 2 : 1 (D) None of these

Q.23) If x and y are integers, then the equation $5x +$

$19y = 64$ has :

- (A) No solution for $x < 300$ and $y < 0$
 (B) No solution for $x > 250$ and $y > -100$
 (C) A solution for $250 < x < 300$
 (D) A solution for $-59 < y < -56$

Q.24) A person buys 18 local tickets for Rs. 110. Each first class ticket costs Rs. 10 and each second class ticket costs Rs. 3. What will another lot of 18 tickets in which the number of first class and second class tickets are interchanged cost?

- (A) Rs. 112 (B) Rs. 118
 (C) Rs. 121 (D) Rs. 124

Q.25) Two horses start trotting towards each other, one from A to B and another from B to A. They cross each other after one hour and the first horse reaches B, $\frac{5}{6}$ hours before the second horse reaches A. If the distance between A and B is 50 km. What is the speed of the slower horse?

- (A) 30 km/h (B) 15 km/h
 (C) 25 km/h (D) 20 km/h

Q.26) A man row downstream at 12 km/h and upstream at 8 km/h. What is the speed of man in still water?

- (A) 12 km/h (B) 10 km/h
 (C) 8 km/h (D) 9 km/h

Q.27) The solution of the equations :

$$\frac{xy}{y-x} = 110, \frac{yz}{z-y} = 132, \frac{zx}{z+x} = \frac{60}{11} \text{ is :}$$

- (A) (12, 11, 10) (B) (10, 11, 12)
 (C) (11, 10, 12) (D) (12, 10, 11)

Q.28) Solve : $\frac{2(x-1)}{5} \leq \frac{3(2+x)}{7}, x \in R :$

- (A) $(44, \infty)$ (B) $[44, \infty)$
 (C) $[-44, \infty)$ (D) $(-44, \infty)$

Q.29) An examination consists of 160 questions. One mark is given for every correct option. If one-fourth mark is deducted for every wrong option and half mark is deducted for every question left, then one person scores 79. And if half mark is deducted for every wrong option and one-fourth mark is deducted for every left question, the person scores 76, then find the number of questions he attempted correctly.

- (a) 80 (b) 100
 (c) 120 (d) 140

Q.30) The number of ordered pairs of different prime numbers whose sum is not exceeding 26 and difference between second number and first number cannot be less than 10.

- (a) 8 (b) 9
 (c) 10 (d) 11

Answer Sheet

Q.1	B	Q.11	D	Q.21	B
Q.2	A	Q.12	B	Q.22	A
Q.3	C	Q.13	D	Q.23	C
Q.4	D	Q.14	A	Q.24	D
Q.5	A	Q.15	B	Q.25	D
Q.6	D	Q.16	C	Q.26	B
Q.7	A	Q.17	B	Q.27	B
Q.8	A	Q.18	A	Q.28	C
Q.9	D	Q.19	A	Q.29	B
Q.10	A	Q.20	B	Q.30	D