



7. If in the equation  $x + 2y = 10$ , the value of  $y$  is 6, then the value of  $x$  will be  
 (a) -2                      (b) 2                      (c) 4                      (d) 5
8. One equation of a pair of dependent linear equations is  $2x + 5y = 3$ . The second equation will be \_\_\_\_\_.  
 (a)  $2x + 5y = 6$    (b)  $3x + 5y = 3$    (c)  $-10x - 25y + 15 = 0$    (d)  $10x + 25y = 15$
9. The solution of the equations  $x - y = 2$  and  $x + y = 4$  is \_\_\_\_\_.  
 (a) 3 and 5              (b) 5 and 3              (c) 3 and 1              (d) -1 and -3
10. A pair of linear equations which has a unique solution  $x = 2, y = -3$  is  
 (a)  $x + y = -1; 2x - 3y = -5$                       (b)  $2x + 5y = -11; 4x + 10y = -22$   
 (c)  $2x - y = 1; 3x + 2y = 1$                       (d)  $x - 4y - 14 = 1; 5x - y - 13 = 0$

**Directions:** In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).  
 (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).  
 (c) Assertion (A) is true but reason (R) is false.  
 (d) Assertion (A) is false but reason (R) is true.

11. Assertion: The number of common solutions for the system of linear equations  $5x + 4y + 6 = 0$  and  $10x + 8y = 12$  is zero.

Reason: The graph of linear equations  $a_1x + b_1y + c_1 = 0$  and  $a_2x + b_2y + c_2 = 0$  gives a pair of intersecting lines if  $a_1/a_2 \neq b_1/b_2$

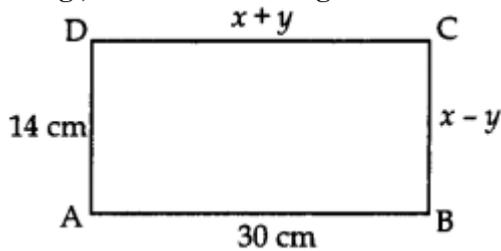
12. Assertion: The value of  $k$  for which the system of linear equations  $3x - 4y = 7$  and  $6x - 8y = k$  have infinite number of solution is 14.

Reason: The graph of linear equations  $a_1x + b_1y + c_1 = 0$  and  $a_2x + b_2y + c_2 = 0$  gives a pair of intersecting lines if  $a_1/a_2 \neq b_1/b_2$

### SECTION B ( 2 X 10 = 20 )

- Solve the following pair of linear equations using substitution method.  
 $x - y + 1 = 0; 4x + 3y - 10 = 0$
- Solve the following pair of linear equations using elimination method.  
 $x - y + 1 = 0; 4x + 3y - 10 = 0$
- Find the values of  $k$  for which the pair of linear equations  $kx + y = k^2$  and  $x + ky = 1$  have infinitely many solutions.

- Find the relation between  $p$  and  $y$  if  $x = 3$  and  $y = 1$  is the solution of the pair of equations  $x - 4y + p = 0$  and  $2x + y - q - 2 = 0$ .
- In Fig., ABCD is a rectangle. Find the values of  $x$  and  $y$ .



- If  $51x + 23y = 116$  and  $23x + 51y = 106$ , then find the value of  $(x - y)$ .
- For what value of  $a$  does the point  $(3, a)$  lies on the line represented by  $2x - 3y = 5$ ?
- Find out whether the following pair of equation is consistent or inconsistent.  
 $3x + 2y = 5$ ;  $2x - 3y = 7$
- Find whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident:  $2x - 3y + 6 = 0$ ,  $4x - 5y + 2 = 0$
- Solve the following pair of linear equations by substitution.  
 $y - 4x = 1$                        $6x - 5y = 9$

#### SECTION C ( 3 X 5 = 15 )

- Solve  $2x + 3y = 11$  and  $x - 2y = -12$  algebraically and hence find the value of  $m$  for which  $y = mx + 3$
- Draw the graphs of the pair of equations  $x + 2y = 5$  and  $2x - 3y = -4$ . Also find the points where the lines meet the X-axis.
- Given a linear equation  $3x - 5y = 11$ . Form another linear equation in these variables such that the geometric representation of the pair so formed is:  
(i) intersecting lines    (ii) coincident lines    (iii) parallel lines
- Solve for  $x$  and  $y$ :             $6(ax + by) = 3a + 2b$              $6(bx - ay) = 3b - 2a$
- Find those integral values of  $m$  for which the  $x$ -coordinate of the point of intersection of lines represented by  $y = mx + 1$  and  $3x + 4y = 9$  is an integer.

#### SECTION D ( 5 X 5 = 25 )

- The ages of two friends Anu and Baiju differ by 3 years. Anu's father Dharam is twice as old as Anu and Baiju is twice as old as his sister Clara. The ages of Clara and Dharam differ by 30 years. Find the ages of Anu and Baiju.
- One says, "Give me a hundred, friend! I shall then become twice as rich as you." The other replies, "If you give me ten, I shall be six times as rich as you." Tell me what is the amount of their (respective) capitals?
- The students of a class are made to stand in rows. If 3 students are extra in a row, there would be 1 row less. If 3 students are less in a row, there would be 2 rows more. Find the number of students in the class.
- At a certain time in a zoo, the number of heads and the number of legs of lions and peacocks were counted and it was found that there were 47 heads and 152 legs. Find the number of lions and peacocks in the zoo.

5. The area of a rectangle reduces by 160 m if its length is increased by 5 m and breadth is reduced by 4 m. However, if length is decreased by 10 m and breadth is increased by 2 m, then its area is decreased by 100 sq m. Find the dimensions of the rectangle.

**SECTION E ( 4 X 2 = 8 )**

**CASE STUDY BASED QUESTION – 1**

1. A test consists of 'True' or 'False' questions. One mark is awarded for every correct answer while  $\frac{1}{4}$  mark is deducted for every wrong answer. A student knew answers to some of the questions. Rest of the questions he attempted by guessing. He answered 120 questions and got 90 marks
- (i) If answer to all questions he attempted by guessing were wrong, then frame a system of linear equations for the situation? ( 2)
  - (ii) How many questions did he guess? (1)
  - (iii) How many answers did he know? (1)

**CASE STUDY BASED QUESTION – 2**

In a two digit number, the digit in the unit place is twice of the digit in the tens place. If the digits are reversed, the new number is 27 more than the given number.

Based on the above information, answer the following questions:

- (i). Form the pair of linear equations in two variables from this situation. (1)
- (ii). Find the original number. (1)
- (iii). Find the sum of the two numbers. (1)