

FlexiPrep

NCERT Class 10 Mathematics Linear Equation Formative Assessment CBSE Board Sample Problems Part 2 (For CBSE, ICSE, IAS, NET, NRA 2022)

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Question 6. True or False statement

- a) Line $4x + 5y = 0$ and $11x + 17y = 0$ both passes through origin
- b) Pair of lines $117x + 14y = 30, 65x + 11y = 19$ are consistent and have a unique solution
- c) There are infinite solution for equation $17x + 12y = 30$
- d) $x = 0, y = 0$ has one unique solution
- e) Lines represented by $x - y = 0$ and $x + y = 0$ are perpendicular to each other
- f) $2x + 6y = 12$ and $8x + 24y = 65$ are consistent pair of equation
- g) $x + 6y = 12$ and $4x + 24y = 64$ are inconsistent pair of equation

Solution

- a) True
- b) True
- c) True
- d) True
- e) True
- f) False
- g) True

Multiple-Choice Questions

Question 7. Find the value of p for which the linear pair has infinite solution

$$12x + 14y = 0$$

$$36x + py = 0$$

- a) 14

b) 28

c) 56

d) 42

Solution (d)

For infinite solution

$$\frac{a_1}{a_2} = \frac{b_1}{b_2}$$

$$\text{So } \frac{12}{36} = \frac{14}{p} \Rightarrow p = 42$$

Question 8. There are 10 students in XII class. Some are maths and some bio student. The no of bio students are 4 more then math's students? Find the no of math's and bio students

a) 1,9

b) 4,6

c) 2,8

d) 3,7

Solution (d)

Let x be math's students

y be bio students

Then

$$x + y = 10$$

$$y = x + 4$$

Solving these linear pair through any method, we get

$$x = 3 \text{ and } y = 7$$

Question 9 which of the below pair are consistent pair?

a) $x - 3y = 3, x - 9y = 2$

b) $51x + 68y = 110, 3x + 4y = 99$

c) $2x + 3y = 10, 9x + 11y = 12$

d) None of these

Solution

For consistent pair

$$\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$$

Or

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

Analyzing all of them, we get c as the answer

Question 10. There are two numbers. Two conditions are there for them

i) Sum of these two numbers are 100

ii) One number is four time another number.

What are these numbers?

a) 20,80

b) 30,70

c) 40,60

d) 25,75

Solution (a)

Let x and y are the number

$$x + y = 100$$

$$y = 4x$$

Solving them we get $x = 20$ and $y = 80$

Question 11. The number of solution of the linear pair

$$x + 37y = 123$$

$$21x - 41y = 125$$

a) No solution

b) One solution

c) Infinite many

d) None of these

Solution (d)

Short Answer Question

Question 12. The sum of a 2-digit number and number obtained by reversing the order of the digits is 99. If the digits of the number differ by 3. Find the number

Solution: 63 or 36

Question 13. Rajdhani train covered the distance between Lucknow and Delhi at a uniform speed. It is observed that if Rajdhani would have run slower by 10 km/h r, it would have taken 3 hours more to reach the destination and if Rajdhani would have run faster by 10 km/hr, it would have taken 2 hours less. Find the distance Lucknow and Delhi?

Solution

Let x be the speed and t be the original timing, then distance between Lucknow and Delhi

Distance = speed \times time = xy

Now from first observation

$$xy = (x - 10)(y + 3) \Rightarrow 3x - 10y - 30 = 0$$

From second observation

$$xy = (x + 10)(y - 2) \Rightarrow 2x - 10y + 20 = 0$$

Solving both, we get

$$x = 50 \text{ km/hr}$$

$$y = 12 \text{ hours}$$

So distance between Lucknow and Delhi = $50 \times 12 = 600 \text{ Km}$

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