

8th Linear Equations of one or two Variables Solved

CBSE TEST PAPER – 6

What is an equation?

A statement which contains the equal sign = is known as an equation. eg; $2x - 4x = 2x$, $45 = 0$

1. The sum of the ages of Anup and his father is 100. When Anup is as old as his father now, he will be 5 times as old as his son Anuj is now. Anuj will be eight years older than Anup is now, when Anup is as old as his father. What are their ages now?

Let the present ages (in years) of Anup's father, Anup and Anuj be x , $(100 - x)$ and y respectively.

Difference between Anup's father and Anup's ages (in years) = $x - (100 - x) = x - 100 + x = 2x - 100$

$2x - 100$ years later, Anup will be x years old and 5 times old as Anuj is now.

$$x = 5y$$

$$y = x/5 \text{ -----(i)}$$

When Anup is x yr old, then Anuj will be $y + (2x - 100)$ yrs old and 8 yrs older than Anup is now

$$\text{Therefore } y + (2x - 100) = (100 - x) + 8 \text{ -----(ii)}$$

On putting $y = x/5$ from (i) we get

$$x = 65 \text{ yrs}$$

So Anup's father's age = 65 yrs, Anup's age = $100 - 65 = 35$ yrs , Anuj's age = $x/5 = 65/5 = 13$ yrs

2. I am currently 5 times as old as my son. In 6 years of time I will be three times as old he will be then. What are our ages now?

Let the Age Of Me Be $5x$ And Sons Be x .

After 6 Years $5x + 6$ And $x + 6$

It is Given That I Would Be Three Times The Age Of My Son

$$5x + 6 = 3(x + 6) \Rightarrow 5x + 6 = 3x + 18 \Rightarrow 5x - 3x = 18 - 6 \Rightarrow 2x = 12 \Rightarrow x = 6$$

$$\text{So My Age} = 6 \times 5 = 30$$

Answer: My Age- 30 Years, Sons Age 6 Years

3. If the length and breadth of a rectangular field are in the ratio 6:4. Find the length and breadth if the cost of fencing the rectangular field at the rate of Rs 80 per meter is Rs 16000.

Given, the ratio of length and breadth of rectangular field = 6:4 = $6x/4x$

$$\therefore \text{Perimeter of field} = 2(l+b) = 2(6x+4x) = 20x$$

$$\text{It is given that cost of fencing the field} = \text{Rs } 16000 \Rightarrow 20x \times 80 = 16000 \Rightarrow x = 10$$

$$\therefore \text{Length of rectangular field} = 6x = 6 \times 10 = 60 \text{ m and breadth of rectangular field} = 4x = 4 \times 10 = 40 \text{ m}$$

4. The present age of Prabha's mother is three times the present age of Prabha. After 5 years, their ages will add to 66 years. Find their present ages.

Let the present age of Prabha = x years

$$\therefore \text{present age of Prabha's mother} = 3x \text{ years}$$

After 5 years, age of Prabha = $(x + 5)$ years

After 5 years, age of Prabha's mother = $3x + 5$ years

According to the given condition,

$$3x + 5 + x + 5 = 66 \Rightarrow 4x = 56 \Rightarrow x = 14$$

5. Ramesh has three times as many two-rupee coins as he has 5-rupee coins. If he has in all a sum of Rs 77, then how many coins of each denomination does he have?

Let the number of 5-rupee coins = x The number of 2-rupee coins = $3x$

According to the given condition,

$$2 \times 3x + 5 \times x = 77 \Rightarrow 11x = 77 \Rightarrow x = 7 \text{ Hence, Ramesh has 7 five-rupee coins and 21 two-rupee coins.}$$

6. One of the two digits of a two-digit number is three times the other. If we interchange the digits and add the resulting number to the original number we get 132. Find the number.

Let the two-digit number is $10x + y$

$$\text{Now, } y = 3x$$

now, when we interchange the digits, we get, $10y + x$

$$\text{According to the question, } 10x + y + 10y + x = 132$$

$$\text{Put: } y = 3x, \quad 10x + 3x + 30x + x = 132$$

$$\Rightarrow 44x = 132 \Rightarrow x = 132/44 = 3$$

Hence first digit = $x = 3$ and second digit = $y = 3x = 3 \times 3 = 9$ Hence the number = 39

7. 'A' is twice as old as 'B'. Five years ago A's age was 3 times B's age. Find their present ages.

let "A" be ' x ' years old. and "B" be ' y ' years old.

$$\text{now, } x = 2y \dots\dots\dots (1)$$

"A" 's age 5 years ago = $x - 5$

"B" 's age 5 years ago = $y - 5$

now, it is given

$$(x - 5) = 3(y - 5)$$

Substituting (1) we get, $2y - 5 = 3(y - 5)$

$$\Rightarrow 2y - 5 = 3y - 15 \Rightarrow 3y - 2y = 10 \Rightarrow y = 10 \quad a = 2b = 20$$

Therefore their presents ages are 15 and 5 respectively.

Now you can solve:

8. A digit of a two - digit number differs by 3. If the digits are interchanged and the resulting number is added to the original number, we get 121. Find the original number.

9. The sum of the digits of a two - digit number is 13. If the digits are interchanged and the resulting number is added to the original number, then we get 143. What is the original number?

10. five years ago amrita's age was thrice as old as his brother. now the difference of their ages is 16. What are their present ages?

Let the Amrita age is x yrs then his brothers age will be $(x - 16)$ yrs

5 Years Ago their ages will be $x - 5$ and $x - 21$

It is given that,

$$3(x - 21) = x - 5$$

$$3x - 63 = x - 5$$

$$3x - x = -5 + 63$$

$$2x = 58$$

$$x = 29$$

So ,Her Brothers age $29 - 16 = 13$