



Name:

14

## Linear Equations Worksheet

Solve to find the unknown variable

1  $-\frac{9}{5}x = -45$

2  $\frac{x}{3} - \frac{x}{5} = 2$

3  $\frac{4x + 5}{6} = \frac{7}{2}$

4  $8 = 2(x - 5) + 6x$

5  $-(x + 2) = 2(3x - 4)$

6  $3 = 4(x - 2) + 5 - 3x$

7  $\frac{2x - 1}{3} - \frac{3x}{4} = \frac{5}{6}$

8  $-5x + 3 = 2x + 8$

9  $4 = -(2x + 4)$

10  $\frac{7}{8}y - 6 = 8$



Name:

15

1.  $x - 2 = 7$

2.  $y + 3 = 10$

3.  $6 = z + 2$

4.  $\frac{3}{7} + x = \frac{17}{7}$

5.  $6x = 12$

6.  $\frac{t}{5} = 10$

7.  $\frac{2x}{3} = 18$

8.  $1.6 = \frac{y}{1.5}$

9.  $7x - 9 = 16$

10.  $14y - 8 = 13$

11.  $17 + 6p = 9$

12.  $\frac{x}{3} + 1 = \frac{7}{15}$



Name:

16

**Just do it!**

**Identify the equations.**

(i)  $x + y = 10$

(ii)  $2xy$

(iii)  $3x + 4 = 40$

(iv)  $4x + 3y - 3$





Name:

17

1) Form new equations by carrying out the action (given in brackets) on both sides of the equation.

(i)  $2x + 3 = 13$  (Multiply by 2)

(ii)  $3y - 3 = 21$  (Add 5)

(iii)  $5x + 14 = 24$  (Subtract 6)

(iv)  $10y + 6 = 36$  (Divide by 2)

(v)  $5 + 4x = 21$  (Multiply by 3)

(vi)  $8 + 7x = 29$  (Subtract 4)

2) Solve each of the following equations and check your solution by substituting its value in the equation.

(i)  $6 = 3(a - 3)$

(ii)  $6 = 4x - 2$

(iii)  $3(y + 3) + 2 = 4$

(iv)  $2 = 4(z + 4)$

(v)  $6 = 3(b - 4)$

(vi)  $3(y + 3) + 4 = 28$

(vii)  $\frac{y - 2}{2} = 3$

(viii)  $\frac{3a - 7}{4} = -4$

(ix)  $3(b + 4) - 7 = 4b + 14$

(x)  $4(x + 2) = -5(x + 2)$

(xi)  $\frac{4x}{2} = -3(2 - x)$

(xii)  $\frac{-4(3 - y)}{2} = 3(3 + y)$



Name:

18

1) Solve the following by the transposition method and check your answers.

(i)  $y + 8 = -3$

(ii)  $3a = -9$

(iii)  $\frac{p}{15} = 2$

(iv)  $2q + 4 = -6$

(v)  $2x = -8$

(vi)  $3 - 2y = -5$

(vii)  $9a - 7 = 14 + 2a$

(viii)  $q - \frac{1}{2} = 4 - q$

(ix)  $a + \frac{3}{2} = 5 - 6a$

(x)  $17a = 238$

(xi)  $3(-x + 1) = -8$

(xii)  $5(x + 2) = 6$

(xiii)  $2(2x + 4) - 3(x - 1) = 11$

(xiv)  $3(2x - 1) + 2(1 - 5x) = 9 + x$

(xv)  $7(x - 2) - 8(4 - 3x) = 47$

(xvi)  $\frac{y}{2} - 5 = \frac{y}{3} + \frac{1}{2}$

(xvii)  $\frac{2a}{5} + 4 = \frac{a}{3} - \frac{1}{5}$

(xviii)  $\frac{m}{8} - \frac{1}{2} = \frac{m}{6} - 2$



Name:

19

Solve the following by forming simple equations:

- (i) Find a number  $n$  that is 3 times the sum of 5 and 4.
- (ii) Find a number  $y$  that is 3 less than the product of 8 and 3.
- (iii) Find a number  $x$  that is 5 times the difference between 16 and 4.
- (iv) The quotient of 40 and 5 is subtracted from the difference between 40 and 5, to give  $x$ . What is  $x$ ?
- (v) If  $a$  is a number obtained by first dividing 54 by 6, then adding 1, and multiplying the sum by 3, what is  $a$ ?
- (vi) 19 subtracted from a number gives 11. Find the number.
- (vii) Find the number which when divided by 7 gives 13 as the quotient and 4 as the remainder.



Name:

### Solve the following age problems.

- (i) Riyaz's mother is seven times older than him. Four years from now, she will be four times as old as Riyaz will then be. What are their present ages?
- (ii) Vivek is twice as old as his cousin Ruchi is now. If Vivek is also 3 years older than Ruchi, find their ages.
- (iii) A is 15 years older than B. Ten years ago, A was four times B's age. What are their ages now?



Name:

5) Solve the following number problems.

- (i) A number is divided into two parts, one part being 4 times the other. The difference between the two parts is 15. What is the number?
- (ii) Divide 40 into two parts such that one part is 10 more than the other.
- (iii) Two parts of a number are such that one is half the other. The sum of the two parts is 8 more than their difference. What are the parts and what is the number?





Name:

### Solve the following money problems.

- (i) A piggy bank contains only 20p coins. If the total value of the money is ₹60, find the number of coins in the piggy bank.
- (ii) A wallet contains ₹250 in 25 paise coins. How many such coins are there?
- (iii) I have some 20 paise coins and an equal number of 10 paise coins. If the total amount is ₹300, how many coins of each denomination are there?
- (iv) A piggy bank contains only 50p coins and 25p coins. There are four times as many 50p coins as there are 25p coins. If all the money in the piggy bank adds up to ₹1080, find the number of 50p coins in it.



Name:

1) Which of the following are equations?

(i)  $2x + 9 = 8$

(ii)  $3x - 1 + y$

(iii)  $7a = 8$

(iv)  $2a - \frac{3}{4}$

2) Find out if the value given for the literal in each equation satisfies it or not.

(i)  $6 - y = 3$  for  $y = 2$  (ii)  $5x + 3 = 7$  for  $x = -2$  (iii)  $5b = 80$  for  $b = 16$  (iv)  $3a + 63 = 63$  for  $a = 41$

3) Translate the given mathematical statements into linear equations and solve them.

(i) Two subtracted from five times a number is equal to eight.

(ii) One added to a number and the whole multiplied by two, is equal to four.

(iii) A quarter subtracted from a number is equal to three-quarters.

(iv) Five more than thrice a number is seventeen.

4) Solve the following equations:

(i)  $\frac{2x}{x+1} = \frac{7}{12}$

(ii)  $2x + 3 = -4x - 7$

(iii)  $2x + 3 = 6 - (2x - 3)$

(iv)  $\frac{5}{3} = \frac{x}{6}$

(v)  $6x + 2 = 29 - 3x$

(vi)  $\frac{a}{3} + 4 = \frac{4a - 1}{5}$

(vii)  $6x + 5 = x + 10$

(viii)  $-3(x + 2) = 12$

5) If  $12c - 2(c + 1) = 8c + 22$ , find the value of  $c$ .

6) The perimeter of a rectangle is 76 m and its length is two more than twice the width. Find the dimensions.

7) The sum of three consecutive integers is 75. Find the integers.

8) A man's present age is eight times his son's age. After two years, his age will be six times his son's age. What are their present ages?

9) Sonu is 22 years older to Asha. After twenty years, he will be twice her age. What are their present ages?

10) Arun has ₹500 with him in ₹10 and ₹5 notes. He has three times as many ₹5 notes as he has ₹10 notes. How much of each denomination does he have?

11) I bought some apples and oranges totalling 26 in all. If the number of apples is 8 more than twice the number of oranges, find how many of each kind I bought.

12) A class has 2 boys more than girls. If there are 36 students in all, how many boys are there?