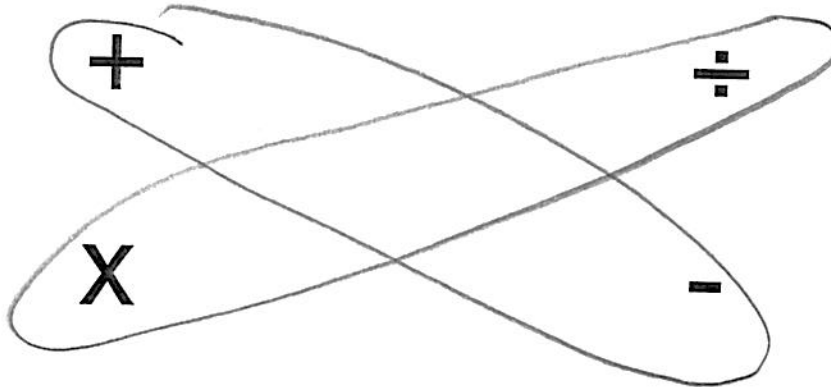


What is the opposite operation ?



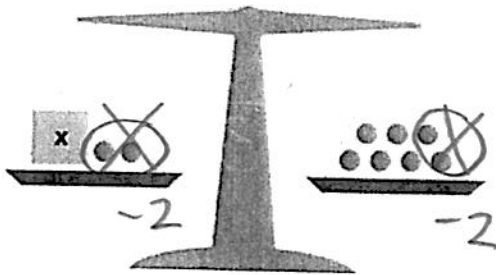
Inverse operations "undo" or reverse each other's results.

Addition and Subtraction are inverse operations

Multiplication and Division are inverse operations

Keep the equation balanced.

$$x + 2 = 7$$



$$x = 5$$

$$x + \cancel{2} = 7 \quad \cancel{-2}$$

$$x = 5$$

Verify

$$\begin{array}{r} x + 2 = 7 \\ \downarrow \\ (5) + 2 = 7 \\ \checkmark \\ 7 = 7 \end{array}$$

Solve for x:

$$x + 4 = 10$$

-4 -4

$$x = 6$$

Verify

$$x + 4 = 10$$

$$(6) + 4 = 10$$

$$10 = 10 \checkmark$$

$$x - 5 = 11$$

+5 +5

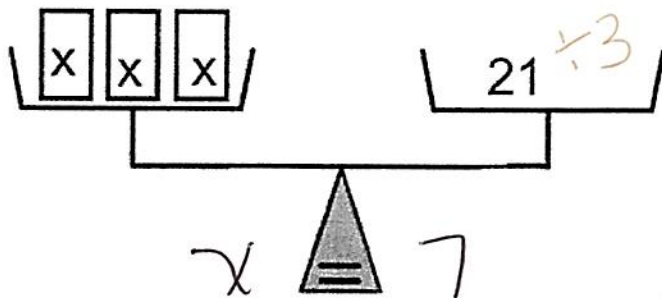
$$x = 16$$

Verify

$$x - 5 = 11$$

$$(16) - 5 = 11$$

$$11 = 11 \checkmark$$



$$3x = 21$$

3 3

$$x = 7$$

Verify

$$3x = 21$$

$$3(7) = 21$$

$$21 = 21 \checkmark$$

Solve for x:

$$\frac{-5x}{-5} = \frac{35}{-5}$$

$$x = -7$$

Verify

$$\begin{aligned} -5x &= 35 \\ -5(-7) &= 35 \\ 35 &= 35 \checkmark \end{aligned}$$

$$\frac{x}{4} = 3(4)$$

$$x = 12$$

Verify

$$\begin{aligned} \frac{x}{4} &= 3 \\ \frac{12}{4} &= 3 \\ 3 &= 3 \checkmark \end{aligned}$$

Rewrite $\frac{1}{2}x = 11$
 $(2) \frac{x}{2} = 11(2)$

$$x = 22$$

Verify

$$\begin{aligned} \frac{x}{2} &= 11 \\ \frac{22}{2} &= 11 \\ 11 &= 11 \checkmark \end{aligned}$$

Write, then solve an equation to determine the unknown.

Example:

Three times a number is -3.6

$$\begin{aligned} 3x &= -3.6 \\ \frac{3x}{3} &= \frac{-3.6}{3} \\ x &= -1.2 \end{aligned}$$

You Try:

Four more than a number is 32.

$$\begin{aligned} x + 4 &= 32 \\ -4 & \quad -4 \\ x &= 28 \end{aligned}$$

5 less than a number is 46.

$$\begin{aligned} x - 5 &= 46 \\ +5 & \quad +5 \\ x &= 51 \end{aligned}$$

Worksheet 1: One Step Equations

Solve for the variable by using inverse operations to isolate it.

Adding and Subtracting:

| | | | |
|----|---------------|-----|----------------|
| #1 | $15 + b = 23$ | #2 | $-15 + n = -9$ |
| #3 | $26 = 8 + v$ | #4 | $x - 7 = 13$ |
| #5 | $m + 4 = -12$ | #6 | $p - 6 = -5$ |
| #7 | $8 = 3 + p$ | #8 | $m - 9 = -13$ |
| #9 | $16 + n = 9$ | #10 | $v - 15 = -27$ |

Multiplying and Dividing:

| | | | |
|-----|-------------|-----|--------------------|
| #11 | $-104 = 8x$ | #12 | $-6 = \frac{b}{4}$ |
| #13 | $14b = -56$ | #14 | $\frac{v}{8} = 2$ |
| #15 | $10n = 40$ | #16 | $11 = \frac{k}{5}$ |
| #17 | $-15x = 0$ | #18 | $\frac{m}{4} = -8$ |
| #19 | $21 = -7n$ | #20 | $-5 = \frac{a}{9}$ |

Answers

1. $b = 8$
2. $n = 6$
3. $v = 18$
4. $x = 20$
5. $m = -16$
6. $p = 1$
7. $p = 5$
8. $m = -4$
9. $n = -7$
10. $v = -12$
11. $x = -13$
12. $b = -24$
13. $b = -4$
14. $v = 16$
15. $n = 4$
16. $k = 55$
17. $x = 0$
18. $m = -32$
19. $n = -3$
20. $a = -45$