

Section 1.1: Solving Simple Equations

equation: expression = expression

↖ *must have an equal sign!

solution: a value that makes an equation true

inverse operations: 2 operations that "undo" each other

ex: add & subtract

multiply & divide

Solve the equation. Check your solution.

<p>1. $w + 4 = 16$</p> $\begin{array}{r} \cancel{+4} \quad \cancel{-4} \\ \hline w = 12 \end{array}$	<p>2. $x + 7 = -12$</p> $\begin{array}{r} \cancel{+7} \quad \cancel{-7} \\ \hline x = -19 \end{array}$	<p>3. $-15 + w = 6$</p> $\begin{array}{r} \cancel{+15} \quad \cancel{+15} \\ \hline w = 21 \end{array}$
<p>4. $z - 5 = 8$</p> $\begin{array}{r} \cancel{+5} \quad \cancel{+5} \\ \hline z = 13 \end{array}$	<p>5. $-2 = y - 9$</p> $\begin{array}{r} \cancel{+9} \quad \cancel{+9} \\ \hline 7 = y \\ y = 7 \end{array}$	<p>6. $7q = 35$</p> $\begin{array}{r} \cancel{7} \quad \cancel{7} \\ \hline q = 5 \end{array}$
<p>7. $4b = -52$</p> $\begin{array}{r} \cancel{4} \quad \cancel{4} \\ \hline b = -13 \end{array}$	<p>8. $(3) = \frac{q}{11}$</p> $\begin{array}{r} \cancel{11} \quad \cancel{11} \\ \hline 33 = q \end{array}$	<p>9. $\frac{n}{-2} = (-15)(-2)$</p> $\begin{array}{r} \cancel{-2} \quad \cancel{-2} \\ \hline n = 30 \end{array}$

10. A coupon subtracts \$17.25 from the price p of a pair of headphones. You pay \$71.50 for the headphones after using the coupon. Write and solve an equation to find the original price of the headphones.

$$\begin{array}{r} p - 17.25 = 71.50 \\ + 17.25 \quad + 17.25 \\ \hline p = \$88.75 \end{array}$$

The original price of the headphones is \$88.75.

11. After a party, you have $\frac{2}{5}$ of the brownies you made left over. There are 16 brownies left. How many brownies did you make for the party?

$$\begin{array}{l} \frac{5}{2} \left(\frac{2}{5} \cdot x \right) = \left(\overset{8}{16} \right) \cdot \frac{5}{2} \\ x = 40 \end{array}$$

you made 40 brownies for the party.

Translate the following into algebraic equations.

12. Two more than a number is ten.

$$n + 2 = 10$$

13. Eight less than a number is greater than nine.

$$n - 8 > 9$$

14. The product of two and a number is 22.

$$2n = 22$$

15. The difference of a number and two is seven.

$$n - 2 = 7$$

16. The quotient of a number and three is less than eight.

$$\frac{n}{3} < 8$$

17. Four less than the product of six and a number is nine.

$$6n - 4 = 9$$