


## Chapter 2 Equations in One Variable

### Lesson 2-4 Solve Equations with Variables on Each Side

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 **3** Solve  $8y - 3 = 6y + 17$ . Check your solution.

$8y - 3 = 6y + 17$	Write the equation.
$\begin{array}{r} 8y - 3 = 6y + 17 \\ -6y \quad = -6y \\ \hline 2y - 3 = 17 \end{array}$	Subtraction Property of Equality
$\begin{array}{r} 2y - 3 = 17 \\ + 3 = + 3 \\ \hline 2y = 20 \end{array}$	Simplify. Addition Property of Equality
$\begin{array}{r} 2y = 20 \\ \frac{2y}{2} = \frac{20}{2} \end{array}$	Simplify. Division Property of Equality
$y = 10$	Simplify.

So, the solution is 10.

To check the solution, replace  $y$  with 10 in the original equation.

$8y - 3 = 6y + 17$	Write the original equation.
$8(10) - 3 = 6(10) + 17$	Replace $y$ with 10.
$80 - 3 = 60 + 17$	Multiply.
$77 = 77 \checkmark$	The sentence is true.



**Nine fewer than half a number is five more than four times the number.**  
**Define a variable, write an equation, and solve to find the number.**

<b>Words</b>	Nine fewer than half a number is five more than four times the number.
<b>Variable</b>	Let $n$ represent the number.
<b>Equation</b>	$0.5n - 9 = 4n + 5$

$$0.5n - 9 = 4n + 5$$

Write the equation.

$$0.5n - 9 - 5 = 4n + 5 - 5$$

Subtraction Property of Equality

$$0.5n - 14 = 4n$$

Simplify.

$$0.5n - 0.5n - 14 = 4n - 0.5n$$

Subtraction Property of Equality

$$-14 = 3.5n$$

Simplify.

$$\frac{-14}{3.5} = \frac{3.5n}{3.5}$$

Division Property of Equality

$$-4 = n$$

Simplify.