

2.1 Multi-Step Equations Continued

Recall: an equation is like a balanced scale.

Isolate the variable using inverse operations
to undo operations in reverse order.

Check ~~check~~ answers:

$$\begin{aligned} 4b - 1 &= 7 \\ 4b &= 7 + 1 \\ 4b &= 8 \\ b &= \frac{8}{4} \\ \boxed{b} &= \boxed{2} \end{aligned}$$

$$\begin{aligned} \text{check: } 4b - 1 &= 7 \\ b = 2 \quad 4(2) - 1 &= 7 \quad \text{TRUE} \end{aligned}$$

Examples:

1. $3x - 5 = 40$

$$3x = 40 + 5$$

$$3x = 45$$

$$x = \frac{45}{3}$$

$$\boxed{x = 15}$$

check: $3x - 5 = 40$
 $x = 15 \quad 3(15) - 5 = 40$
 $45 - 5 = 40$
 $40 = 40$
 true

2. $7 - x = 9$

$$-1x = 9 - 7$$

$$-1x = 2$$

$$x = \frac{2}{-1}$$

$$x = -2$$

check: $7 - x = 9$
 $x = -2 \quad 7 - (-2) = 9$
 $7 + 2 = 9$
 $9 = 9$
 true

3. $4a + 0.2 = 5$

$$4a = 5 - 0.2$$

$$4a = 4.8$$

$$a = \frac{4.8}{4}$$

$$a = 1.2$$

check: $4a + 0.2 = 5$
 $a = 1.2 \quad 4(1.2) + 0.2 = 5$
 $4.8 + 0.2 = 5$
 $5 = 5$
 true

4. $\frac{x}{7} - 2 = 10$

$$\frac{x}{7} = 10 + 2$$

$$\frac{x}{7} = 12$$

$$x = 12(7)$$

$$x = 84$$

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HOMEWORK

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