

Alg 1 2.3

Solve equations involving more than one operation  
 Solve consecutive integer problems

Order of operations: what we DO  
 Solving: what we UNDO



Socks  $\rightarrow$  shoes  
 Shoes  $\rightarrow$  socks

Algebra tiles

$$\begin{array}{r} 2x + 3 = 7 \\ -3 \quad -3 \\ \hline 2x = 4 \end{array}$$

$$\begin{array}{r} 2 \cdot 2 + 3 = 7 \\ 4 + 3 = 7 \end{array}$$



$$\begin{array}{r} 11 \cdot 3 - 4 = 29 \\ 33 - 4 = 29 \end{array}$$

$$\frac{2x}{2} = \frac{4}{2}$$

Solve each equation. Check your solution.

a.  $11x - 4 = 29$

$x = 2$

$$\frac{11x}{11} = \frac{33}{11}$$

$x = 3$

b.  $\frac{a+7}{8} = 5 \cdot 8$

$$\frac{(33+7)}{8} = 5$$

$$\begin{array}{r} (a+7) = 40 \\ -7 \quad -7 \\ \hline a = 33 \end{array}$$

Solve each equation. Check your solution.

$$\text{1A. } \begin{array}{r} 2a - 6 = 4 \\ +6 \quad +6 \end{array}$$

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$$\frac{2a}{2} = \frac{10}{2}$$

$$a = 5$$

$$\begin{array}{l} \text{✓} \\ \text{✓} \end{array} \begin{array}{l} 2 \cdot 5 - 6 = 4 \\ 10 - 6 = 4 \end{array}$$

$$\text{1B. } \frac{-2 \cdot (n+1)}{-2} = 15 \cdot -2$$

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$$\frac{(n+1)}{-1} = \frac{-30}{-1}$$

$$n = -31$$

$$\frac{(-31+1)}{-2} = 15$$

Solve each equation. Check your solution.

$$1 \quad \begin{array}{r} 3m + 4 = -11 \\ -4 \quad -4 \\ \hline \end{array}$$

$$\frac{3m}{3} = \frac{-15}{3}$$

$$m = -5$$

$$\begin{array}{l} 3 \cdot -5 + 4 = -11 \\ -15 + 4 = -11 \quad \text{✓} \end{array}$$

$$2. \quad \begin{array}{r} 12 = -7f - 9 \\ +9 \quad +9 \\ \hline \end{array}$$

$$\frac{21}{-7} = \frac{-7f}{-7}$$

$$-3 = f$$

$$12 = -7 \cdot -3 - 9$$

$$\begin{array}{l} 12 = -21 + -9 \\ 12 = -30 \end{array}$$

$$3. \quad \frac{-3}{-2} = \frac{2}{-2} + \frac{a}{11}$$

$$\frac{11}{1} \cdot \frac{-5}{1} = \frac{a}{11} \cdot \frac{11}{1}$$

$$-55 = a$$

$$-3 = 2 + \frac{-55}{11}$$

$$-3 = 2 - 5$$

$$\frac{3}{2} \cdot 12\frac{2}{3} - 8 = 11$$

$$11 = 11$$

$$4. \frac{3}{2}a - 8 = 11$$

$$+8 \quad +8$$

$$\frac{\left(\frac{3}{2}\right)a}{\frac{3}{2}} = \frac{19}{\frac{3}{2}}$$

$$a = 12\frac{2}{3}$$

$$7. 8 = \frac{(x-5)}{7} \cdot 7$$

$$56 = (x-5)$$

$$+5 \quad +5$$

$$61 = x$$

$$8 = \left(\frac{61-5}{7}\right)$$

$$6. \frac{c+1}{-3} = -21$$

