

Try your best. Show and check your work. Circle your final answer.

1. **Write** and then **solve** an equation that represents the statement:

four less than twelve times a number, n , is 44.

$$\begin{array}{l}
 12n - 4 = 44 \\
 +4 \quad +4 \\
 \hline
 12n = 48 \\
 \frac{12n}{12} = \frac{48}{12} \\
 n = 4
 \end{array}
 \quad
 \begin{array}{l}
 12(4) - 4 \\
 44 \checkmark
 \end{array}$$

2. **Solve.** Show all your work.

$$\begin{array}{l}
 \frac{1}{5}m + 6 = 11 \\
 -6 \quad -6 \\
 \hline
 \frac{1}{5}m = 5(5) \\
 m = 25
 \end{array}
 \quad
 \begin{array}{l}
 \frac{1}{5}(25) + 6 = 11 \\
 \checkmark
 \end{array}$$

3. **Solve.** Show all your work.

$$\begin{array}{l}
 5m - 150 = 2m + 51 \\
 -2m \quad -2m \\
 \hline
 3m - 150 = 51 \\
 +150 \quad +150 \\
 \hline
 3m = 201 \\
 \frac{3m}{3} = \frac{201}{3} \\
 m = 67
 \end{array}
 \quad
 \begin{array}{l}
 5(67) - 150 \\
 335 - 150 \\
 185 \\
 2(67) + 51 \\
 134 + 51 \\
 185 \checkmark
 \end{array}$$

4. **Solve.** Show all your work.

$$4(x + 9) + 2x = 6x - 4$$

$$\begin{array}{l}
 4x + 36 + 2x = 6x - 4 \\
 \cancel{4x} + 36 = \cancel{6x} - 4 \\
 -6x \quad -6x \\
 \hline
 36 = -4
 \end{array}$$

True:
Identity

False:
No Solution

5. Bismark (Car A) leaves Columbus traveling at a speed of 50 miles per hour. Two hours later, Benedict (Car B) leaves Columbus traveling at a speed of 60 miles per hour. The cars' distances from Columbus at time t hours are shown in the table.

Car	A	B
Distance (miles)	$50t$	$60(t - 2)$

After how much time t will the two cars be the same distance from Columbus? **Hint: Set the two expressions as equal, then solve the equation.**

$$\begin{array}{l}
 50t = 60(t - 2) \\
 50t = 60t - 120 \\
 -60t \quad -60t \\
 \hline
 -10t = -120 \\
 \frac{-10t}{-10} = \frac{-120}{-10} \\
 t = 12
 \end{array}$$

Bismark and Benedict will be the same distance from Columbus after 12 hours.

Try your best. Show and check your work. Circle your final answer.

6. **Solve.** Show all your work.

$$\frac{p}{12} + 3 = 8$$

$$\frac{p}{12} - 3 = -3$$

$$12 \cdot \frac{p}{12} = 5(12)$$

$$p = 60$$

$$\frac{60}{12} + 3 = 8$$

7. **Solve.** Show all your work.

$$\frac{x+15}{10} = \frac{2}{5}$$

$$5(x+15) = 20$$

$$5x + 75 = 20$$

$$-75 \quad -75$$

$$5x = -55$$

$$\frac{5x}{5} = \frac{-55}{5}$$

$$x = -11$$

$$\frac{4}{10} = \frac{2}{5}$$

$$20 = 20$$

8. **Solve.** Show all your work.

$$|2b + 1| = 5$$

$$2b + 1 = 5$$

$$2b = 4$$

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

$$b = 2$$

$$2b + 1 = -5$$

$$2b = -6$$

$$\frac{2b}{2} = \frac{-6}{2}$$

$$b = -3$$

$$5 \text{ or } -5$$

9. The screen of a standard television has a width to height ratio of 4 : 3.



Write and **solve** a proportion equation to find the height of a standard television screen with a width of 15 inches.

$$\frac{4 \text{ width}}{3 \text{ height}} = \frac{15 \text{ width}}{h \text{ height}}$$

$$4h = 45$$

$$\frac{4h}{4} = \frac{45}{4}$$

$$h = 11.25 \text{ inches}$$

10. **Solve for a Variable.** The formula to convert Celsius to Fahrenheit is $F = \frac{9}{5}C + 32$, where F is the temperature in Fahrenheit and C is the temperature in Celsius. Solve for C .

$$F = \frac{9}{5}C + 32$$

$$-32 \quad -32$$

$$\frac{9}{5}(F - 32) = \frac{9}{5}C$$

$$C = \frac{5}{9}(F - 32)$$