

Algebra

Name: Key

Extra Practice for chapter 3

Date: \_\_\_\_\_ Per: \_\_\_\_\_

Solve. Be sure to show all steps.

1.  $4x - 1 = 2(2x + 3)$

$$4x + (-1) = 4x + 6$$

$$\begin{array}{r} +(-4x) \quad +(-4x) \\ \hline -1 = 6 \\ \text{Always False} \end{array}$$

No Real Solution

2.  $9 - 5c = 12 - (6c + 7)$

$$9 + (-5c) = 12 + (-1)(6c + 7)$$

$$9 + (-5c) = 12 + (-6c) + (-7)$$

$$-5c + 9 = -6c + 5$$

$$\begin{array}{r} +6c \quad +(-9) \quad +6c \quad +(-9) \\ \hline c = -4 \end{array}$$

check  
 $29 = 29 \checkmark$

3.  $-\frac{2}{3}d = 8$

$$\begin{array}{r} \times(-\frac{3}{2}) \quad \times(-\frac{3}{2}) \\ \hline d = -12 \end{array}$$

check  
 $8 = 8 \checkmark$

4.  $8a - 3(2a + 5) = 13$

$$8a + (-3)(2a + 5) = 13$$

$$8a + (-6a) + (-15) = 13$$

$$2a + (-15) = 13$$

$$\begin{array}{r} +15 \quad +15 \\ \hline 2a = 28 \end{array}$$

$$\begin{array}{r} \frac{2a}{2} = \frac{28}{2} \\ \hline a = 14 \end{array}$$

check  
 $112 - 99 = 13 \checkmark$

5.  $\frac{2}{5}(10c - 50) = 4(9 - 6c)$

$$\frac{2}{5}(10c + (-50)) = 4(9 + (-6c))$$

$$4c + (-20) = 36 + (-24c)$$

$$\begin{array}{r} +24c \quad +20 \quad +20 \quad +24c \\ \hline 28c = 56 \end{array}$$

$$\begin{array}{r} 28c = 56 \\ \frac{28}{28} = \frac{56}{28} \\ \hline c = 2 \end{array}$$

check  
 $\frac{2}{5}(-30) = 4(-3)$   
 $-12 = -12 \checkmark$

6.  $6m + 5 - 3m = 7(m - 1)$

$$6m + 5 + (-3m) = 7(m + (-1))$$

$$3m + 5 = 7m + (-7)$$

$$\begin{array}{r} +(-3m) \quad +7 \quad +(-3m) \quad +7 \\ \hline 12 = 4m \end{array}$$

$$\begin{array}{r} \frac{12}{4} = \frac{4m}{4} \\ \hline m = 3 \end{array}$$

check  
 $18 + 5 - 9 = 7(2)$   
 $14 = 14 \checkmark$

Answer the following word problems by showing all 5 steps.

7. P.S. duPont's school band needs to buy new percussion equipment. The Equipment will cost \$2450. They have collected \$812 in previous fundraisers. If they sell sandwiches at \$3.50 each, how many sandwiches will they need to sell to raise the remaining funds?

\$2450 - Cost of equipment

\$812 - Current savings

\$3.50 - Cost per sandwich

S = # of sandwiches to sell

$$\left( \begin{array}{c} \text{Cost of} \\ \text{Equipment} \end{array} \right) = \left( \begin{array}{c} \text{Current} \\ \text{Savings} \end{array} \right) + \left( \begin{array}{c} \text{Cost} \\ \text{Per} \\ \text{Sandwich} \end{array} \right) \left( \begin{array}{c} \# \\ \text{of} \\ \text{Sandwiches} \end{array} \right)$$

$$2450 = 812 + 3.5S$$

$$\begin{array}{r} +(-812) \\ \hline \end{array} \quad \begin{array}{r} +(-812) \\ \hline \end{array}$$

$$\frac{1638}{3.5} = \frac{3.5S}{3.5}$$

$$S = 468$$

They will need to sell 468 sandwiches to raise enough for the equipment.

8. The membership fee for joining a gardening association is \$24 per year. A local botanical garden charges members of the gardening association \$3 for admission to the garden. Nonmembers are charged \$6 for admission. After how many visits to the garden is the total cost for members the same as the total cost for nonmembers? Should you become a member of the association?

\$24 - membership fee

\$3 - Membership cost per visit

\$6 - Non-member cost per visit

V = # of visits until the costs are the same

$$\left( \begin{array}{c} \text{Cost with} \\ \text{membership} \end{array} \right) = \left( \begin{array}{c} \text{Cost without} \\ \text{membership} \end{array} \right)$$

$$\left( \begin{array}{c} \text{Membership} \\ \text{fee} \end{array} \right) + \left( \begin{array}{c} \text{member} \\ \text{cost} \end{array} \right) \left( \begin{array}{c} \# \\ \text{of} \\ \text{visits} \end{array} \right) = \left( \begin{array}{c} \text{Non-member} \\ \text{cost} \end{array} \right) \left( \begin{array}{c} \# \\ \text{of} \\ \text{visits} \end{array} \right)$$

$$24 + 3V = 6V$$

$$\begin{array}{r} +(-3V) \\ \hline \end{array} \quad \begin{array}{r} +(-3V) \\ \hline \end{array}$$

$$\frac{24}{3} = \frac{3V}{3}$$

$$V = 8$$

It will take 8 visits for the costs to be the same. You should only buy the membership if you will visit 8 or more times.