

$$\textcircled{17} \quad 4(2y-5) = 6y-17$$

$$\begin{array}{r} 8y-20 = 6y-17 \\ -6y \quad -6y \\ \hline 2y-20 = -17 \\ +20 \quad +20 \\ \hline 2y = 3 \\ \frac{2y}{2} = \frac{3}{2} \\ y = \frac{3}{2} \end{array}$$

$$\textcircled{18} \quad 8(2y-3) = 16y-10$$

$$\begin{array}{r} 16y-24 = 16y-10 \\ -16y \quad -16y \\ \hline -24 = -10 \\ \text{no solution} \end{array}$$

$$\textcircled{19} \quad 5y+12 = 4(y+3)$$

$$\begin{array}{r} 5y+12 = 4y+12 \\ -4y \quad -4y \\ \hline 12 = 12 \end{array}$$

All real #s

$$\textcircled{20} \quad \frac{1}{4}(y+12) = \frac{3}{4}y+13$$

$$\begin{array}{r} \frac{1}{4}y+3 = \frac{3}{4}y+13 \\ -\frac{3}{4}y \quad -\frac{3}{4}y \\ \hline -\frac{2}{4}y+3 = 13 \\ -\frac{2}{4}y = 10 \\ \frac{-2y}{-2} = \frac{40}{-2} \\ y = -20 \end{array}$$

$$\textcircled{21} \quad |7y| = 42$$

$$\begin{array}{r} 7y = 42 \quad 7y = -42 \\ \frac{7y}{7} = \frac{42}{7} \quad \frac{7y}{7} = \frac{-42}{7} \\ y = 6 \quad y = -6 \\ y = \{-6, 6\} \end{array}$$

$$\textcircled{22} \quad |2y-4| = 16$$

$$\begin{array}{r} 2y-4 = 16 \quad 2y-4 = -16 \\ +4 \quad +4 \quad +4 \quad +4 \\ \hline 2y = 20 \quad 2y = -12 \\ \frac{2y}{2} = \frac{20}{2} \quad \frac{2y}{2} = \frac{-12}{2} \\ y = 10 \quad y = -6 \\ y = \{10, -6\} \end{array}$$

$$\textcircled{23} \quad |5y+10| - 8 = -10$$

$$\begin{array}{r} |5y+10| = -2 \\ \emptyset, \text{ no solution, } \{ \text{empty set} \} \end{array}$$

$$\textcircled{24} \quad \text{solve for } y$$

$$\begin{array}{r} x+9y = 5 \\ -x \quad -x \\ \hline 9y = 5-x \\ \frac{9y}{9} = \frac{5-x}{9} \\ y = \frac{5-x}{9} \end{array}$$

$$\textcircled{25} \quad \text{solve for } y$$

$$z^2 B = \frac{y-x}{z} = z$$

$$\begin{array}{r} Bz = y-x \\ +x \quad +x \\ \hline Bz+x = y \end{array}$$

$$\textcircled{26} \quad \text{solve for } y$$

$$\begin{array}{r} xy + 9 = n \\ -9 \quad -9 \\ \hline xy = n-9 \\ \frac{xy}{x} = \frac{n-9}{x} \\ y = \frac{n-9}{x} \end{array}$$

$$\textcircled{27} \quad 2(3y+4) = 2(4y-10)$$

$$\begin{array}{r} 6y+8 = 8y-20 \\ -8y \quad -8y \\ \hline -2y+8 = -20 \\ -8 \quad -8 \\ \hline -2y = -28 \\ \frac{-2y}{-2} = \frac{-28}{-2} \\ y = 14 \end{array}$$

$\textcircled{28}$ Sam's Phone Company charges \$75 plus \$.50 per minute. Randy's Phone Company charges \$100 plus \$.25 per minute. For what number of minutes would the companies charges be the same?

$$\begin{array}{r} \text{Sam} \quad \text{Randy} \\ 75 + .50m = 100 + .25m \\ - .25m \quad - .25m \\ \hline 75 + .25m = 100 \\ -75 \quad -75 \\ \hline .25m = 25 \\ \frac{.25m}{.25} = \frac{25}{.25} \\ m = 100 \end{array}$$

They will be the same at 100 minutes

$\textcircled{29}$ If you use 50 minutes, which company is cheaper?

$$\begin{array}{r} \text{Sam} \quad \text{Randy} \\ 75 + .50(50) \quad 100 + .25(50) \\ \$100 \quad \$112.50 \end{array}$$

At 50 minutes Sam's Phone Company is cheaper

$\textcircled{30}$ If you use 200 minutes, which company is cheaper?

$$\begin{array}{r} \text{Sam} \quad \text{Randy} \\ 75 + .50(200) \quad 100 + .25(200) \\ \$175 \quad \$150 \end{array}$$

At 200 minutes Randy's phone company is cheaper

Vocab cards

Equation	A mathematical statement that two expressions are equivalent
Expression	A mathematical phrase that contains numbers, operations, and/or variables
Isolate the Variable	To use inverse operations on both sides until the variable appears by itself
Simplify	To perform all indicated operations
Variable	A symbol used to represent a quantity that can change
Literal Equation	An equation that contains two or more variables
Solve	To find all solutions to an equation
Distributive Property	For all real numbers a , b , and c $a(b \pm c) = ab \pm ac$