

1-1 Solving Equations

Objectives:

- I can use inverse operations to solve two-step equations
- I can solve equations with multiple variables
- I can verify the solution to an equation

Vocabulary:

Isolate: Get the Variable alone

Inverse operation: operation that

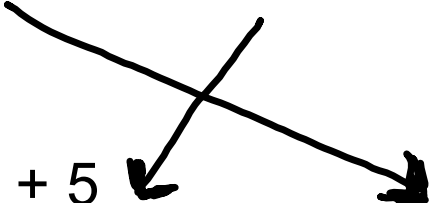
Variable: Letters undoes another operation

Like terms: $3x + 6 - 2x - 1$

Coefficient:

The # in front of the Variable.

Equations/Expressions:



The diagram shows two mathematical expressions: $2x + 5$ on the left and $2x + 5 = 10$ on the right. Two black arrows originate from a single point above the space between the two expressions. One arrow points down and to the left towards the expression $2x + 5$. The other arrow points down and to the right towards the expression $2x + 5 = 10$.

$$2x + 5 \quad \swarrow \quad \searrow \quad 2x + 5 = 10$$

Group the expressions and equations together

$$-4y$$

$$\underline{2-3=-1}$$

$$\underline{12-y=4}$$

$$\underline{7x=2}$$

$$k-7$$

$$-6+8$$

$$-m$$

$$\underline{5+k=4}$$

Describing an expression

Write an expression for the following statements



x more than 7 $7 + x$

one third of a number $\frac{1}{3}a$


18 decreased by 3 times d $18 - 3d$

10 less a number n $n - 10$

Directions to Harts

1. Turn left onto 600 N
2. Turn right onto Main street
3. Turn left onto 500 E
4. Turn left at State St. 
5. Turn left into Harts 

Get Back to AFHS

1. Turn Right out of Harts
- 2.
3.  Turn Right @ State st.
- 4.
3. Turn Right ON 500 E
4. Turn Left ON main
5. Right ON 600 N

Inverse Operations:

\times

\div

$+$

$-$

\div

\times

$-$

$+$

Equation $x + 7 = 3$

$$\begin{array}{r|l} -7 & -7 \\ \hline x & -4 \end{array}$$

 $x = \underline{-4}$ Verify:

$$\begin{aligned} -4 + 7 &= 3 \\ 3 &= 3 \quad \checkmark \end{aligned}$$

Equation $\frac{1}{4}x = 16$

$$\cancel{4} \cdot \frac{1x}{\cancel{4}} = 16 \cdot 4$$

$$x = 64$$

 $x = \underline{\quad}$ Verify:

$$\frac{1 \cdot 64}{4} = 16 \checkmark$$

Equation $3k = 9$

$$\begin{array}{r|l} \frac{1}{3} & \frac{9}{3} \\ \hline k & 3 \end{array}$$

 $k = \underline{3}$ Verify:

Equation $-2x + 5 = 11$

$$\begin{array}{r|l} -5 & -5 \\ \hline -2x & = 6 \\ \hline -2 & \quad -2 \\ \hline x & = -3 \end{array}$$

Verify: $-2(-3) + 5 = 11$
 $6 + 5 = 11$

x = _____

Equation $-c - 2 = 13$

$$+2 \quad | \quad +2$$

$$-c = 15$$

$$c = -15$$



Verify:

$c =$ _____

Equation $\frac{b}{6} + 7 = 10$

$\frac{b}{6} = 3$

$b = 18$

Verify:

 $b = \underline{\quad}$

Solve $d = rt$ for r

$$\frac{d}{t} = r$$

$$\frac{d}{t} = r$$

$$r = \frac{d}{t}$$

Solve $2x + 3y = 6$ for y

$$\cancel{2x} + 3y = 6 - \cancel{2x}$$

$$\frac{3y}{3} = \frac{6 - 2x}{3}$$

$$y = \frac{6 - 2x}{3}$$

Solve the following equations:

a. $2x + 4 = 10$

b. $\frac{x}{3} - 1 = 3$

