

## 1.4 "Solving 1-Step Equations"

Equation is a mathematical sentence that uses an EQUAL (=) sign.

- In the ENGLISH language, the word "IS" represents the equal sign.

Two plus the variable "x" is eight.

$$2 + x = 8$$

Equations can be Open Sentences; which are equations that have one or more variables in them.

$$2x + 5 = 13 \qquad 2x + y = -7$$

↔ open sentences ↔

The solution of an equation is the value of a variable that makes the equation TRUE!!

$$2x + 5 = 13$$

$$x = 4$$

$$\{ \overset{x}{2}, \overset{x}{3}, \overset{\checkmark}{4}, \overset{x}{5} \}$$

# makes the eqn. true?

Plug in each # and simplify!

Your solutions for equations MUST be written in SET NOTATION.

↳ { 2 } the solution

$$x + 5 = 17$$

$$\underline{-5} \quad \underline{-5}$$

$$x = 12$$

This was middle school!

$$x + 5 = 17$$

$$\underline{-5} \quad \underline{-5}$$

$$x = 12$$

$$\{ 12 \}$$

This is High School!



The fraction bar represents division!

c)  $\frac{r}{38} = 39$

$$\frac{38r}{38} \downarrow$$

1r

(-38)  $\frac{r}{38} = 39$  (38)

$r = 1482$   
 $\{1482\}$

check

$$\frac{r}{38} = 39$$

$$\frac{1482}{38} = 39$$

$$39 = 39$$

d)  $\frac{120}{-5} = \frac{-5p}{-5}$  what does  $-5p$  mean in terms of math?

$$-5 = p$$

~~$$\frac{120}{-5} = \frac{-5p}{-5}$$~~

~~$$120 = p$$~~

divide both sides by coefficient!

$$-24 = p$$

$$\{-24\}$$

check

$$120 = -5p$$

$$120 = -5(-24)$$

$$120 = 120$$

e)  $x - 14 = -26$  rewrite with only 1 sign.

$$x + 14 = -26$$

$-14$   $-14$

$$x = -40$$

$$\{-40\}$$

check

$$x + 14 = -26$$

$$(-40) + 14 = -26$$

$$-26 = -26$$

f)  $-35 = x + -2$  rewrite with only 1 sign.

$$-35 = x - 2$$

$$+2$$
  $+2$

$$-33 = x$$

$$\{-33\}$$

g)  $-15 + a = -17$   
 $+15$   $+15$

$$a = -2$$

$$\{-2\}$$

$$h) -6 = a + -29$$

$$-6 = a - 29$$

$$\begin{array}{r} +29 \\ -6 \\ \hline \end{array} \quad \begin{array}{r} +29 \\ -29 \\ \hline \end{array}$$

$$23 = a$$

$$\{23\}$$

$$i) \frac{x}{1.7} = 3.3$$

$$(1.7) \frac{x}{1.7} = 3.3(1.7)$$

$$x = 5.61$$

$$\{5.61\}$$

$$j) \frac{-6a}{-6} = \frac{-72}{-6}$$

$$a = 12$$

$$\{12\}$$

$$k) n - -22 = 10$$

$$n + 22 = 10$$

$$\begin{array}{r} -22 \\ -22 \\ \hline \end{array}$$

$$n = -12$$

$$\{-12\}$$