- \* Equivalent equations have the <u>Same</u>, solution.
- \* To solve, an equation means to find all <u>values</u> of the <u>Variable</u> that make the equation a <u>true</u> statement.
- \* Addition Property of Equality states that if an equation is true and the \_\_\_\_\_\_ number is added to each side, the resulting equation is \_\_\_\_\_\_.
- Same numbers is <u>Subtracted</u> from each side, the resulting equation is also <u>true</u>.

Key Concept: You can <u>add</u> or <u>subtract</u> any number from an equation – AS LONG AS YOU DO THE <u>SAME</u> THING TO BOTH SIDES of the equation.

Examples: (Horizontal method)

A. 
$$h - 12 = -27$$

h-12+12=-27+12 (Do the opposite of subtracting 12 from each side) h=-15 (Simplify – work out each side.)

B. 
$$k + 63 = 92$$

K + 63 - 63 = 92 - 63 (Do the opposite of adding 63 to each side.) K = 29 (Simplify)

C. 
$$c + 102 = 36$$

C+102-102=36-102 + 5-5=

 $C = \frac{10}{15 - 15} = \frac{12}{15}$ 

Vertical method:

A) 
$$h-12 = -27$$
  
+12 +12  
 $h = -15$ 

1

D.  $y + \frac{4}{5} = \frac{2}{3}$ 

#### Lesson 2-1 TRY THESE ON YOUR OWN: PRACTICE:

1. a - 24 = 16

2. c + 22 = -39

3. 129 + k = -42

4.  $\frac{2}{3} + y = \frac{5}{6}$ 

- Fourteen more than a number is equal 6. to twenty-seven. Find this number.
  - Twelve less than a number is equal to negative twenty-five. Find the number.

### Lesson 2-1

# Solving One-Step Equations

- \* Multiplication Property of Equality states that if an equation is true and the each side is multiplied by the <u>Same</u> number, the resulting equation is true.
- Division Property of Equality states that if an equation is <u>true</u> and the each side is <u>divided</u> by the <u>Same</u> number, the resulting equation is <u>true</u>.



Key Concept: You can do <u>anything</u> to an equation—AS LONG AS YOU DO THE <u>SAME</u> THING TO BOTH SIDES of the equation.

Examples:

E. 
$$\frac{s}{12} = \frac{3}{4}$$

The variable is being divided, so multiply by that same number to get a coefficient of 1.

F.  $\frac{r}{10} = 15$ 

$$G. \quad \left(-3\frac{3}{8}\right)k = 1\frac{4}{5}$$

Change mixed number to improper fraction and multiply by the reciprocal.

$$\frac{-\frac{27}{8}K = \frac{9}{5}}{-\frac{8}{27} \cdot -\frac{27}{8}K = \frac{19}{5} \cdot -\frac{8}{273}}$$

$$K = -\frac{8}{15}$$

H.  $(2\frac{3}{4})g = 1\frac{2}{3}$ 

$$\frac{11}{4}g = \frac{5}{3}$$

$$\frac{4}{11} \cdot \frac{11}{49} = \frac{5}{3} \cdot \frac{4}{11}$$

The variable is being multiplied by a number, so divide by that number to get a coefficient of 1...

(Symmetric

$$\frac{-15b = -75}{-15}$$
 $b = 5$ 

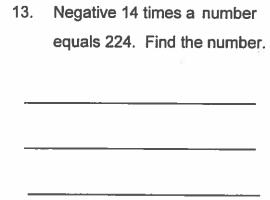
$$J. \qquad \frac{-5x = 20}{5}$$

$$x = -4$$

Lesson 2-1 DO THESE ON YOUR OWN. PRACTICE:



7. 
$$\frac{a}{18} = \frac{2}{3}$$



Solving One-Step Equations

8. 
$$32 = -14c$$

10. 
$$\left(4\frac{1}{3}\right)m = 5\frac{3}{7}$$

12.	<sup>-</sup> 8x	=	96
1	<u> </u>		$\sim$

14. One and a half times a number equals negative six. Find the number.

## Lesson 2-1

# Solving One-Step Equations

#### **Extra Practice:**

$$27 + n = 46$$

$$-5 + a = 21$$

3.

$$67 = w - 65$$

4.

$$q - 11 = -9$$

5.

$$-7y = 28$$

6.

7.

$$35 = \frac{j}{5}$$

8.

$$\frac{q}{-9} = -9$$

9.

$$\frac{3}{5}m = -15$$

10.

$$36 = \frac{4}{9}d$$

11. According to one count, the letter e makes up one-eighth of a typical document written in English. A document contains 2800 letters. About how many letters in the document are not e?

