

Warm-Up:

1) Name the sets of numbers to which each number belongs.

a)  $4/2$

$R, Q, Z, W, N$

b)  $\sqrt{13}$

$R, I$

c)  $-0.\overline{7}$

$R, Q$

2) Determine whether the following statement is true or false. If it is false, give a counterexample.

Every whole number is a natural number.

False,  $0$

3) Name the property illustrated by the following:

$$(7.83)(1) = (7.83)$$

Mult. Identity

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48, 50, 19

19)  $\frac{12}{2}$   $R, Q, Z, W, N$

48)  $mn = 1$   $n = \frac{1}{m}$

They are reciprocals.

50) natural

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## Section 1-3: Solving Equations

Any mathematical sentence with an equal sign is called an **equation**.

Any equation with one or more variables is called an **open sentence**.

The replacement for a variable which makes an open sentence true is called a **solution**.

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Examples:

1) Write an algebraic expression to represent the verbal expression.

a) 7 less than a number

$$n - 7$$

b) the square of a number decreased by the product of 5 and that number

$$n^2 - (5 \cdot n)$$

2) Write a verbal sentence to represent the equation.

a)  $6 = -5 + x$

-5 plus a # equals 6

b)  $7y - 2 = 19$

2 less than the product of a number and 7 equals 19

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**Properties of Equality:**

**Reflexive Property:** For any real number  $a$ ,  $a = a$ .

**Symmetric Property:** For all real numbers  $a$  and  $b$ , if  $a = b$ , then  $b = a$ .

**Transitive Property:** For all real numbers  $a$ ,  $b$ , and  $c$ , if  $a = b$  and  $b = c$ , then  $a = c$ .

**Substitution:** If  $a = b$ , then  $a$  may be replaced with  $b$  and  $b$  may be replaced with  $a$ .

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**Examples:**

3) Name the property illustrated by each statement.

a)  $a - 2.03 = a - 2.03$

Reflexive

b) If  $9 = x$ , then  $x = 9$ .

Symmetric

c) If  $x + 4 = 17$ , then  $x = 13$ .

Subtraction

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Examples:

4) Solve each equation. Check your solution.

a)  $s - 12 = 20$

$s = 32$

b)  $18 = \frac{t}{2}$

$t = 36$

c)  $53 = 3(y - 2) - 2(3y - 1)$

$53 = 3y - 6 - 6y + 2$

$53 = -3y - 4$

$\frac{57}{-3} = -3y$

$y = -19$

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Examples:

5) The formula for a trapezoid is

$$A = \frac{1}{2} (b_1 + b_2) \cdot h$$

Solve for h.

$$\frac{2A}{b_1 + b_2} = \frac{(b_1 + b_2)h}{b_1 + b_2}$$

$$\frac{2A}{b_1 + b_2} = h$$

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Examples:

6) If  $4g + 5 = .5$ , what is the value of  $4g - 2$ ?A) -4.5 B)  $\frac{-4.5}{4}$  C) .1 D) -6.5

$$\begin{array}{r}
 4g + 5 = .5 \\
 -7 \quad -7 \\
 \hline
 4g - 2 = -6.5
 \end{array}$$

$$\begin{array}{r}
 4g + 5 = .5 \\
 \underline{-5 \quad -5} \\
 4g - 2 = -4.5 \\
 \quad \quad -2
 \end{array}$$

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Homework: pg. 23-24 #18-26 even, 27-30 all, 32-40 even,  
41, 42, 43, 62, 63

Quiz over Sections 1-1, 1-2 Next Class

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