

Warm-Up:

Evaluate  $x^3 - 4yz$  for

1)  $x = -1, y = 3, z = -2$

$$-1^3 - 4(3)(-2)$$

$$-1 + 24 = 23$$

2)  $x = -2, y = -1, z = -5$

$$-2^3 - 4(-1)(-5)$$

$$-8 - 20 = -28$$

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35, 32, 36

32)  $w = 20At$

 $w = \text{width}$  $A = \text{angle}$  $t = \text{time}$ 

$w = 20(4)(5)$

$w = 400 \text{ ft}$

$$5) \left( \frac{\frac{C}{A} - 0.3}{0.2} + \frac{\frac{V}{A} - 3}{4} + \frac{\frac{I}{A}}{0.05} + \frac{0.095 - \frac{I}{A}}{0.04} \right) \times \frac{100}{6}$$

$$\left( \frac{\frac{168}{268} - 0.3}{0.2} + \frac{\frac{2385}{268} - 3}{4} + \frac{\frac{17}{268}}{0.05} + \frac{0.095 - \frac{9}{268}}{0.04} \right) \times \frac{100}{6}$$

$$(1.634 + 1.475 + 1.269 + 1.535) \cdot \frac{100}{6}$$

$$(5.913) \cdot \frac{100}{6} = 98.55$$

$$98.6$$

36)  $\frac{1-5}{3}$

$$\frac{x-6}{7}$$

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## Section 1-2: Properties of Real Numbers

Any number found on the number line is a real number.

There are two types of real numbers: rational and irrational.

A **rational number** can be written as a fraction. Rational numbers are labeled as Q.

Examples:  $\frac{1}{3}, 0.\overline{5}, 0, \frac{17}{11}, 0.8$

An **irrational number** cannot be written as a fraction. Irrational numbers are labeled as I.

Examples:  $\pi, \sqrt{2}, 0.1010010001\dots$

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Other sets of numbers:

Integers: Labeled Z. Any positive or negative whole number, including zero.  
{...-3, -2, -1, 0, 1, 2, 3...}

Whole Numbers: Labeled W. Any positive whole number, including zero.  
{0, 1, 2, 3, 4, ...}

Natural Numbers: Labeled N. Any positive whole number NOT including zero.  
{1, 2, 3, 4, 5, ...}

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Examples:

Name the all the sets to which each number belongs.

1)  $\sqrt{6}$   $R, I$

2)  $5$   $R, Q, Z, W, N$

3)  $-2/3$   $R, Q$

4)  $-43$   $R, Q, Z$

5)  $-23.3$   $R, Q$

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The following properties may be performed on all real numbers:

**Commutative Properties:**

For addition:  $a + b = b + a$

For multiplication:  $a \cdot b = b \cdot a$

**Associative Properties:**

For addition:  $(a + b) + c = a + (b + c)$

For multiplication:  $(a \cdot b) \cdot c = a \cdot (b \cdot c)$

**Identity Properties:**

For addition:  $a + 0 = a$

For multiplication:  $a \cdot 1 = a$

**Inverse Properties:**

For addition:  $a + (-a) = 0$

For multiplication:  $a \cdot \frac{1}{a} = 1$

$\leftarrow$  opposites

$\leftarrow$  reciprocals

**Distributive Property:**

$a(b + c) = ab + ac$

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Examples:

6) Name the property illustrated by  $(-8 + 8) + 15 = 0 + 15$

Additive Inverse

7) Identify the additive inverse and multiplicative inverse for -7.

Add. Inverse: 7    Mult. Inverse:  $-\frac{1}{7}$

8) Audrey went to the post office and bought eight 39 cent stamps and eight 24 cent postcard stamps. What was the total amount of money spent on stamps?

$$8(39) + 8(24) \quad 8(.39 + .24)$$

\$5.04

9) Simplify.  $4(3a - b) + 2(b + 3a)$

$$12a - 4b + 2b + 6a$$

$18a - 2b$

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Homework: pg. 15-16 #14-33 all, 36-42 even,  
46, 48, 49, 50, 60

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