

Sec. 1.4 Properties of Real Numbers and Algebraic Expressions, Pp. 30 – 38

Pg. 30, Practice 1 – 4 Write each sentence using mathematical symbols.

1. The product of -4 and x is 20 .
2. Three times the difference of z and 3 equals 9
3. The sum of x and 5 is the same as 3 less than twice x .
4. The sum of y and 2 is 4 more than the quotient of z and 8 .

Pg. 31, Practice 5 Insert the correct symbol: $<$, $>$, or $=$

- | | | | | | |
|------------|---------|-----------|--------|----------|-------|
| a. -6 | -5 | b. $24/3$ | 8 | c. 0 | -7 |
| d. -2.76 | -2.67 | e. $9/10$ | $7/10$ | f. $2/3$ | $7/9$ |

Pg. 32, Practice 6 Write each sentence using mathematical symbols.

- a. The difference of x and 3 is less than or equal to 5 .
- b. y is not equal to -4 .
- c. Two is less than the sum of 4 and one-half z .

Read pg. 39 and answer the following questions:

1. What is the
 - a. additive identity?
 - b. multiplicative identity?
2. What is the
 - a. additive inverse?
 - b. The Additive Inverse is also called _____.
 - c. multiplicative inverse?

- d. The Multiplicative Inverse is also called _____.
3. What is the result when you combine a number with
- the additive identity?
 - the multiplicative identity?
 - its additive inverse?
 - its multiplicative inverse?

Pg. 32, Practice 7 Write the additive inverse.

- a. -7 b. 4.7 c. $-\frac{3}{8}$

Pg. 33, Practice 8 Write the multiplicative inverse.

- a. $-\frac{5}{3}$ b. 14 c. -2

Think About It: What is the multiplicative inverse of zero? Justify your answer.

Read the section on the Commutative, Associative, and Distributive Properties on pp. 33-34.

Sometimes, students have difficulty remembering these properties, even though we use them frequently in math.

Think About It: Suggest a way to connect the name of the property with the action directed by the property.

- Commutative
- Associative
- Distributive

4. Why can't the first two properties be used with subtraction or division?

Pg. 34, Practice 9: Use the Commutative Property to rewrite $8 + 13x$.

Pg. 34, Practice 10: Use the Associative Property to rewrite $3(11b)$.

Pg. 34, Practice 11: Use the Distributive Property to multiply:

a. $4(x + 5y)$

b. $-(3 - 2z)$

c. $0.3x(y - 3)$

Pg. 35, Practice 12: We saw an introduction to this topic in Sec. 1.2. These problems are on the next level up!

Write each sentence as an algebraic expression.

- A parking meter contains x dimes. Write an expression for the value of the dimes.
- The grams of carbohydrates in y cookies if each cookie has 26 g of carbohydrates.
- The cost of z birthday cards if each birthday card costs \$1.75.
- The amount of money you save on a new cell phone costing t dollars if it has a 15% discount.

Pg. 36, Practice 13: A little more challenging!

Write each sentence as an algebraic expression:

- Two numbers have a sum of 16. If one number is x , represent the other number as an expression of x .
- Two angles are supplementary. Express the two angles in terms of x .
- If x is the first of two consecutive even integers, represent the next even integer in terms of x .

- d. One brother is nine years younger than another brother. Express the ages of the two brothers in terms of x .

Think About It: How would we express two consecutive odd integers in terms of x ?

Pg. 37, Practice 14: Simplify the algebraic expressions.

a. $6ab - ab$

b. $4x - 5 + 6x$

c. $17p - 9$

Pg. 38, Practice 15: Simplify each expression.

a. $5pq - 2pq - 11 - 4pq + 18$

b. $3x^2 + 7 - 2(x^2 - 6)$

c. $(3.7x + 2.5) - (-2.1x - 1.3)$

d. $1(15c - 25d) - 1(8c + 6d + 1) + 3$

HAND-IN PRACTICE: Pg. 38 Vocabulary (1 – 12); Pp. 39-40 (2 – 98, even)