

# REVIEW: Properties of Addition and Multiplication

Name \_\_\_\_\_

## Key Concept and Vocabulary

### Associative Properties:

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

$$(a \cdot b) \cdot c = a \cdot (b \cdot c)$$

### Distributive Property:

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

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

### Inverse Properties:

$$a + (-a) = -a + a = 0$$

$$a \cdot \frac{1}{a} = \frac{1}{a} \cdot a = 1, a \neq 0$$

### Commutative Properties:

$$a + b = b + a$$

$$a \cdot b = b \cdot a$$

### Identity Properties:

$$a + 0 = 0 + a = a$$

$$a \cdot 1 = 1 \cdot a = a$$

### Multiplication Properties of 0 and -1:

$$a \cdot 0 = 0 \cdot a = 0$$

$$a \cdot (-1) = (-1) \cdot a = -a$$



## Skill Examples

Identify the property illustrated.

1.  $-2 \cdot (7 \cdot 5) = -2 \cdot (5 \cdot 7)$

Commutative Property of Multiplication

2.  $(-8) \cdot 1 = -8$

Identity Property of Multiplication

3.  $3(6x + 2) = 18x + 6$

Distributive Property

4.  $(w + 3) + 7 = w + (3 + 7)$

Associative Property of Addition

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*Check your answers at [BigIdeasMath.com](http://BigIdeasMath.com).*

Identify the property illustrated.

5.  $(9 \cdot 4) \cdot 5 = 9 \cdot (4 \cdot 5)$

Assoc. Prop. of Mult.

6.  $(-1) \cdot (-12) = 12$

Mult. Prop. of -1

7.  $2a + (-2a) = 0$

Inverse Prop. of Add.

8.  $0 + 11c = 11c$

Identity Prop. of Add.

9.  $9m \cdot 0 = 0$

Mult. Prop. of 0

10.  $(5 - 2b) + 3 = (-2b + 5) + 3$

Comm. Prop. of Add.

11.  $7n - 4n = (7 - 4)n$

Distributive Prop.

12.  $\frac{1}{15d} \cdot 15d = 1$

Inverse Prop. of Mult.

13.  $x + (y + 6) = (x + y) + 6$

Assoc. Prop. of Add.

14.  $\left(\frac{1}{16}k\right)(-32) = (-32)\left(\frac{1}{16}k\right)$

Comm. Prop. of Mult.