

Multiplying Integers



Goal: Multiply integers.

Vocabulary

Multiplicative identity: The number 1

Multiplying Integers

Words

The product of two integers

with the same sign is positive |

The product of two integers

with different signs is negative

Numbers

$$-4 \cdot (-6) = 24$$

$$-4 \cdot 6 = \boxed{-24}$$

EXAMPLE Multiplying Integers

a.
$$5(-6) = 30$$

b.
$$-2(-3) = 6$$

c.
$$-9(4)(-2) = \boxed{-36}(-2)$$
 Multiply from left to right.
= $\boxed{72}$ Multiply

Different signs, so product is negative

Same sign, so product is positive

Multiply.

EXAMPLE 2 **Finding Powers of Integers**

a.
$$(-2)^3 = (-2)(-2)(-2)$$

= $(4)(-2)$
= -8

b.
$$-2^3 = -(2^3)$$

$$= -8$$

Write as a repeated product.

Multiply from left to right.

Multiply.

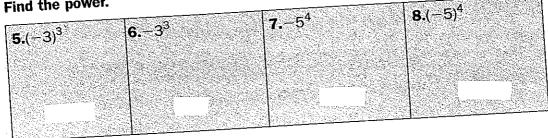
Use order of operations.

Evaluate power.

Guided Practice Find the product.

Guided Practice	Find the product.	42(-10)(-9)
18(7)	2. 9(-4) 3. -7(-12)	
		The state of the s

Find the power.



Evaluating an Expression Involving Multiplication EXAMPLE 3

Catapult A catapult launches a water balloon 10 feet above the ground with a velocity of 30 feet per second. The expression $-16t^2 + 30t + 10$ gives the balloon's height (in feet) above the ground after t seconds. How high is the water balloon after 2 seconds?

Solution

Evaluate the expression for the height when t = 2.

Evaluate the expression for the neighbor
$$400$$
 and 400 and 400

Answer: After 2 seconds, the water balloon is 6 feet above the ground.

Multiplication Properties

Multiplication Property of Zero

Words The product of a number and 0 is 0

Numbers
$$-2 \cdot 0 = \boxed{0}$$

Algebra For any value of a, $a \cdot 0 = 0$.

Identity Property of Multiplication

Words The product of a number and 1 is the number.

Numbers
$$7(\boxed{1}) = 7$$

Algebra For any value of a, a(1) = a.

Closure Property of Multiplication

The product of two integers is an integer.

EXAMPLE 4 Using Multiplication Properties

Find the product.

b.
$$-8(0)$$

Solution

a.
$$21(1) = 21$$

Identity property of multiplication

b.
$$-8(0) = 0$$

Multiplication property of zero

Guided Practice Find the product. Identify any multiplication properties you use.