

Bottling Performance Task

Have your spiral open with your work/analysis of the Bottling Questions.

Lesson 1.4 & 1.5 Notes 9/21/16

Learning Targets:

- **Multiply Integers**

 - Multiply Integers with the **Same** Sign

 - Multiply Integers with **Different** Signs

- **Divide Integers**

 - Divide Integers with the **Same** Sign

 - Divide Integers with **Different** Signs

- **Use Exponents**

 - Repeated Multiplication

 - Punctuation Matters!

- **Order of Operations**

Multiply or Divide Integers with the **Same Sign**

Words: Product is **POSITIVE**

Examples:

$$4 * 5 = 20$$

$$-3 * (-6) = 18$$

$$32 \div 4 = 8$$

$$\frac{-24}{-6} = 4$$

Multiply or Divide Integers with Different Signs

Words: Product is **NEGATIVE**

$$-8 * 10 = -80$$

Examples:

$$-7 \cdot 2 = -14$$

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

$$-3 \cdot 4 = -12$$

$$5(-7) = -35$$

Words: Quotient is **NEGATIVE**

Examples:

$$20 \div (-2) = -10$$

$$\frac{-30}{5} = -6$$

Multiplication.

$5 \cdot 5$

25

$9(-11)$

-99

$-7 \cdot (-8)$

56

$-4(6)$

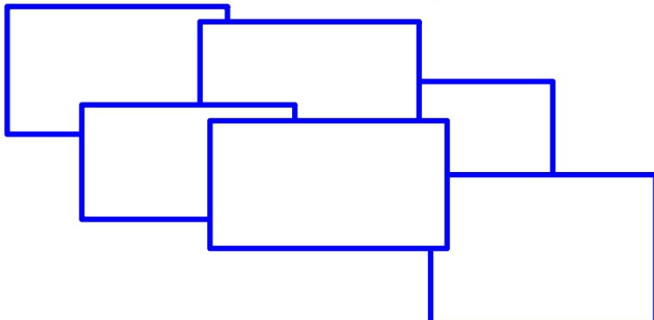
-24

$-3 \cdot (-7)$

21

$-2(-4)(-3)$

-24



Division

$$-14 \div 2 = -7$$

$$\frac{-49}{7} = -7$$

$$\frac{21}{-3} = -7$$

$$0 \div (-6) = 0$$

$$-32 \div (-4) = 8$$

EXAMPLE 4 Real-Life Application

The bar graph shows the number of taxis a company has in service. The number of taxis decreases by the same amount each year for 4 years. Find the total change in the number of taxis.

The bar graph shows that the number of taxis in service decreases by 50 each year. Use a model to solve the problem.

$$\begin{aligned}\text{total change} &= \text{change per year} \cdot \text{number of years} \\ &= -50 \cdot 4 \\ &= -200\end{aligned}$$

Use -50 for the change per year because the number decreases each year.

❖ The total change in the number of taxis is -200 .

Using Exponents

Repeated Multiplication

$$5^3 = 5 \cdot 5 \cdot 5 = 125$$

$$2^5 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 32$$

$$10^2 = 10 \cdot 10 = 100$$



Punctuation is Important!

$$(-3)^2$$

$$(-3)(-3)$$

$$9$$

$$-3^2$$

$$-(3 \cdot 3)$$

$$-9$$

$$(-4)^3$$

$$(-4)(-4)(-4)$$

$$-64$$

Evaluate the expression.

$$-6^2$$

$$-36$$

$$(-3)^3$$

$$(-3)(-3)(-3)$$

$$-27$$

$$-2^3(5)$$

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

$$-(8)(5)$$

$$-40$$

Evaluating an Expression

You must follow the order of operations!

P **E** **M** **D** **A** **S**

$$8 + 10 \div 2^3(-3 + 6)$$

P **Parentheses**

E **Exponents**

MD **Multiplication or Division: Left to Right**

AS **Addition or Subtraction: Left to Right**

Evaluate $10 - x^2 \div y$ when $x = 8$ and $y = -4$

$$10 - 8^2 \div (-4)$$

$$10 - 64 \div (-4)$$

$$10 + 16 = 26$$

Evaluate $\frac{b^2}{a} + 4$ when $a = -18$ and $b = -6$

$$\frac{(-6)^2}{-18} + 4 = \frac{36}{-18} + 4 = -2 + 4 = 2$$

Homework 1.4

Pg 26 # 2-15 all, 24 & 25, 26-36 Evens

Homework 1.5

Pg 32 & 33 # 3-15 all, 26-34 Evens

