

Unit 2: MULTIPLYING & DIVIDING RATIONAL NUMBERS

I can multiply and divide integers.

Multiplication is really repeated addition.

$2 \cdot 3$ means 2 sets of 3.

$2 \cdot -3$ means 2 sets of -3.

$-2 \cdot -3$ means the opposite of 2 sets of 3.

Multiplying Integers Rules

POSITIVE multiplied by POSITIVE = positive

POSITIVE multiplied by NEGATIVE (or NEGATIVE \cdot POSITIVE) = negative

NEGATIVE multiplied by NEGATIVE = positive

Examples:

$$-4 \cdot 2 = -8$$

$$-5 \cdot -3 = 15$$

$$2 \cdot -3 = -6$$

More Than Two Numbers

$$-7 \cdot (-5) \cdot (-4) = -140$$

$$-1(9)(-5) = 45$$

$$-3(5 \cdot 2) \cdot -2 = 60$$

$$35 \cdot -4$$

$$-9 \cdot -5$$

$$-30 \cdot -2$$

1. When multiplying an EVEN number of negatives, and zero is not present, the product will be

positive.

2. When multiplying an ODD number of negatives, and zero is not present, the product will be

negative.

Exponents

$$(-2)^2 = 4$$

$$-2^2 = -4$$

$$(-2)^3 = -8$$

$$(-2)^4 = 16$$

$$-2 \cdot -2$$

$$-(2 \cdot 2)$$

$$-2 \cdot -2 \cdot -2$$

$$-2 \cdot -2 \cdot -2 \cdot -2$$

Dividing Integer Rules

POSITIVE divided by POSITIVE = positive

POSITIVE divided by NEGATIVE (or NEGATIVE \div POSITIVE) = negative

NEGATIVE divided by NEGATIVE = positive

Examples:

$$-\frac{4}{2} = \underline{-2}$$

$$-15 \div -3 = \underline{5}$$

$$\frac{27}{-9} = \underline{-3}$$

$$\frac{-50}{10} = \underline{-5}$$

$$(-144) \div (-12) = \underline{12}$$

$$\frac{-33}{-11} = \underline{3}$$

Using Order of Operations

Examples:

$$1) \quad \frac{-45 \div (-5) + 7}{9 + 7} = \underline{16}$$

$$2) \quad \frac{-3 - 12 \div (-3)}{-3 + 4} = \underline{1}$$

$$3) \quad \frac{-10 + (-20) = -30}{\frac{2 \cdot (-5) + (-20)}{2 \cdot (-3)}} = \underline{-6}$$

$$\frac{-30}{-6} = \underline{(5)}$$

$$4) \quad \frac{12 - (-20) = 32}{\frac{-3(-4) - (-20)}{-5 + (-3)}} = \underline{-8}$$

$$\frac{32}{-8} = \underline{(-4)}$$

Word Problem:

1. The table below shows the number of points scored in the first ten minutes of Jeopardy. Find the mean number of points scored.

Person	James	Jenny	Howard	Arie
Points	-100	300	-500	200

$$-100/4 = -25 \text{ points}$$