

Lesson 9: Integer Multiplication & Division • Inverse Operations

Inverse Operations

Operations that “undo” each other

$$7 + 3 - 3 = 7 \quad \text{addition/subtraction}$$

$$\frac{7 \bullet 2}{2} = 7 \quad \text{multiplication/division}$$

Integer Multiplication & Division

Rules:

- Like signs → positive product
- Unlike signs → negative product

Examples:

a. $(7)(9)$ b. $(-7)(9)$ c. $(-7)(-9)$ d. $(7)(-9)$

Lesson 10: Division by Zero • Conversions of Area

Division by Zero

$$\frac{0}{13} \neq \frac{13}{0}$$

Ex. 10.1: Evaluate: a. $\frac{4-2-2}{13}$ b. $\frac{13}{4-2-2}$

Conversions of Area

Steps:

1. Separate square units of given measurement into unit x unit
2. Multiply by unit multiplier (number of desired unit in given unit)
→ How do you know which goes on top? You want to cancel out the unit you don't want and keep the unit you do want.

Ex 10.5: Use two unit multipliers to convert 44 sq. inches to sq. centimeters. (1 in = 2.54 cm)

Ex 10.6: Use four unit multipliers to convert 125 sq. centimeters to sq. feet. (1 in = 2.54 cm)

Lesson 11: Reciprocal • Identifying Multiplication and Division

Reciprocal

- Inverted form of a fraction $\frac{3}{2}$ $\frac{2}{3}$

- Whole numbers: over 1 4 $\frac{1}{4}$
- Multiply by reciprocal to get 1

Identifying Multiplication and Division

Be careful! Adding the opposite can be helpful.

$$4 - 3(5) - 7(-6) - 4(-5)$$

$$4 - 3(5) - 7(-6) - 4(-5)$$

Lesson 12: Symbols of Inclusion • Order of Operations

Symbols of Inclusion

- Parenthesis, brackets, braces, and bars (?)

$$4 + (5 - 2)$$

$$4 + [5 - 2]$$

$$4 + \{5 - 2\}$$

$$4 + 5 - 2$$

Order of Operations

Please Excuse My Dear Aunt Sally (PEMDAS) Parenthesis, Exponents, Multiplication/Division, Addition/Subtraction

Simplify.

Ex. 12.1: $4(3 + 2) - 5(6 - 3)$

Ex. 12.2: $-3(2 - 3 + 5) - 6(4 + 2) - 3$

Ex. 12.3: $-2(-3 - 3)(-2 - 4) - (-3 - 2) + 3(4 - 2)$

Ex 12.4: $\frac{5(-5 + 3) + 7(-5 + 9) + 2}{(4 - 2) + 3 + 5}$