

Trimester 2 Review Sheet

Operations with Integers and the Order of Operations

Adding Integers

Rules for Adding Integers

- positive + positive = positive
 - negative + negative = negative
 - positive + negative = ?
 - negative + positive = ?
- Add the absolute values of the two numbers.
- Subtract the absolute values of the two numbers. Take the sign of the larger number.

Examples: Find the following sums.

1. $-8 + -3 = \boxed{-11}$
negative + negative = negative
 $8 + 3 = 11$

2. $9 + (-5) = \boxed{4}$
Since 9 is positive, the answer will be positive.
 $9 - 5 = 4$

3. $-8 + 2 = \boxed{-6}$
Since 8 is negative, the answer will be negative.
 $8 - 2 = 6$

Subtracting Integers

Rules for Subtracting Integers

1. Change minus sign to add the opposite (- to +).
2. Follow the rules for adding integers.

Examples: Find the following differences.

1. $-7 - (-5) = \boxed{-2}$
 $-7 - (-5) = -7 + (+5) = -7 + 5$
Since 7 is negative the answer will be negative.
 $7 - 5 = 2$

2. $6 - (-3) = \boxed{9}$
 $6 - (-3) = 6 + (+3) = 6 + 3$
positive + positive = positive
 $6 + 3 = 9$

3. $-1 - 5 = \boxed{-6}$
 $-1 - 5 = -1 + (+5)$
negative + negative = negative
 $1 + 5 = 6$

4. $7 - 9 = \boxed{-2}$
 $7 - 9 = 7 + (-9)$
Since 9 is negative, the answer will be negative.
 $9 - 7 = 2$

Multiplying Integers

Rules for Multiplying Integers

- positive \times positive = positive
- negative \times negative = positive
- positive \times negative = negative
- negative \times positive = negative

Dividing Rational Numbers

Rules for Dividing Integers

- positive \div positive = positive
- negative \div negative = positive
- positive \div negative = negative
- negative \div positive = negative

Examples: Find the following products or quotients.

1. $-8 \times -2 = \boxed{16}$

negative \times negative = positive

$$8 \times 2 = 16$$

2. $-12 \div 4 = \boxed{-3}$

negative \div positive = negative

$$12 \div 4 = 3$$

3. $18 \div -2 = \boxed{-9}$

positive \div negative = negative

$$18 \div 2 = 9$$

4. $4 \times -4 = \boxed{-16}$

positive \times negative = negative

$$4 \times 4 = 16$$

5. $-9 \times 3 = \boxed{-27}$

negative \times positive = negative

$$9 \times 3 = 27$$

6. $-15 \div -5 = \boxed{3}$

negative \div negative = positive

$$15 \div 5 = 3$$

Order of Operations

1. Parentheses
2. Exponents
3. Multiplication and Division, in order from left to right
4. Addition and Subtraction, in order from left to right

Examples: Evaluate each of the following.

1. $12 + 9 \times 2$

$$\begin{array}{r} \swarrow \searrow \\ 12+18 \\ \swarrow \searrow \\ \boxed{30} \end{array}$$

2. $4 + 5 \times 6 \div 10$

$$\begin{array}{r} \swarrow \searrow \\ 4+30 \div 10 \\ \swarrow \searrow \\ 4+3 \\ \swarrow \searrow \\ \boxed{7} \end{array}$$

3. $20 \div 2 + 3 \cdot 5$

$$\begin{array}{r} \swarrow \searrow \\ 10+3 \cdot 5 \\ \swarrow \searrow \\ 10+15 \\ \swarrow \searrow \\ \boxed{25} \end{array}$$

4. $20 \div (2+3) \cdot 5$

$$\begin{array}{r} \swarrow \searrow \\ 20 \div 5 \cdot 5 \\ \swarrow \searrow \\ 4 \cdot 5 \\ \swarrow \searrow \\ \boxed{20} \end{array}$$

