Trimester 2 Review Sheet

Operations with Rational Numbers

Adding Rational Numbers

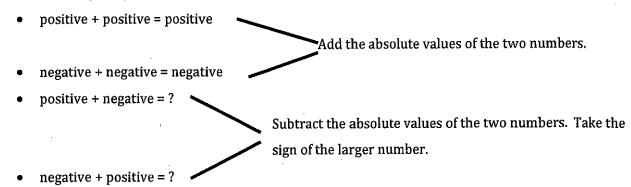
Rules for Adding Fractions

- 1. Find a common denominator. The least common denominator (LCD) is best, but not necessary.
- 2. Add the numerators. Keep the denominator the same.
- 3. Simplify, if necessary. Rename, if necessary.

Rules for Adding Decimals

- 1. Line up the decimals.
- 2. Add like we do with whole numbers. The decimal drops straight down.

Rules for Adding Integers



Subtracting Rational Numbers

Rules for Subtracting Fractions

- 1. Find a common denominator. The least common denominator (LCD) is best, but not necessary.
- Subtract the numerators. If we have mixed numbers, we may have to borrow. Keep the denominator the same.
- 3. Simplify, if necessary. Rename, if necessary.

Rules for Subtracting Decimals

- 1. Line up the decimals.
- 2. Subtract like we do with whole numbers. The decimal drops straight down.

Rules for Subtracting Integers

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

Examples:

2.
$$\frac{8}{9} + \left(-\frac{2}{3}\right) = \boxed{-\frac{7}{9}}$$

$$-\frac{13}{13} \times \frac{3}{3} = \frac{16}{19} = \frac{15}{19} = \frac{15}$$

3.
$$-17.2 \ominus 3.87 =$$

 $-17.2 \ominus 3.87 = \boxed{-21.07}$

4.
$$-2\frac{3}{5} - \frac{1}{3} = \frac{1}{25} - \frac{14}{15}$$

$$2\frac{3 \times 3}{5 \times 3} = 2\frac{9}{15}$$

$$+ \frac{1 \times 5}{3 \times 5} = +\frac{5}{15}$$

$$-\frac{14}{215}$$

Multiplying Rational Numbers

Rules for Multiplying Fractions

- 1. Change mixed numbers and whole numbers to improper fractions.
- 2. Multiply the numerators. Multiply the denominators. Cross cancel, if possible.
- 3. Simplify, if necessary. Rename, if necessary.

Rules for Multiplying Decimals

- 1. Multiply as if there are no decimals (like we are multiplying two whole numbers).
- 2. Count the number of total decimal places in the factors. This sum is the number of decimal places in our product (the answer to a multiplication problem).

Rules for Multiplying Integers

- positive × positive = positive
- negative × negative = positive
- positive × negative = negative
- negative × positive = negative

Dividing Rational Numbers

Rules for Dividing Fractions

- 1. Change mixed numbers and whole numbers to improper fractions.
- 2. Keep the first fraction the same. Change the division sign (+) to a multiplication sign (\times) . Find the reciprocal of the second fraction (flip the fraction).
- 3. Multiply the numerators. Multiply the denominators. Cross cancel, if possible.
- 4. Simplify, if necessary. Rename, if necessary.

Rules for Dividing Decimals

- 1. Move the decimal in the divisor (the one doing the dividing; the one outside the "house") as many places to the right as necessary to make a whole number. Move the decimal in the dividend (the one being divided; the one inside the "house") the same number of places to the right.
- 2. Divide like we do with whole numbers. The decimal goes straight up.

Rules for Dividing Integers

- positive ÷ positive = positive
- negative ÷ negative = positive
- positive + negative = negative
- negative ÷ positive = negative

Examples:

2.
$$-\frac{3}{7} \times (-2\frac{4}{5}) = 1\frac{1}{5}$$

 $-\frac{3}{7} \times (-\frac{14}{5}) = \frac{6}{5} = 1\frac{1}{5}$

3.
$$-5 \div (-1\frac{2}{3}) = \boxed{3}$$

$$-\frac{5}{1}+(-\frac{5}{3})=$$

$$-\frac{4}{1}\times(-\frac{3}{8})=\frac{3}{1}=3$$