

1.4: Rational Numbers

Warm-Up

Evaluate each of the following:

1. a) $\left(\frac{3}{4}\right) \div 5$

b) $\frac{(3)(-7)}{2} - \frac{(5)(3)}{4}$

c) $\left(\frac{15}{-3}\right) - \frac{1}{4}(12-8)^2 - 2$

Rational Numbers

Natural Numbers:

Positive whole numbers. (1, 2, 3, 4, 5, ...)

Integers:

Numbers that are positive and negative whole numbers, including 0.
(...-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, ...)

Rational Numbers:

Numbers of the form $\frac{a}{b}$ where a and b are integers and $b \neq 0$.

e.g., $\frac{3}{4}$, 21, 0.125, $-\frac{2}{3}$, $-8.\overline{234}$

Notation:

A decimal repeats if a block of digits, called a period, repeats, creating a pattern.

e.g., $\frac{2}{3} = 0.33333\dots$ or $0.\overline{3}$, $\frac{9}{11} = 0.81818181\dots$ or $0.\overline{81}$

A decimal terminates if a block of digits stops and does not repeat.

e.g., $\frac{4}{5} = 0.8$, $\frac{7}{8} = 0.875$

Examples

1. Write each of the following as a decimal. Indicate whether the decimal repeats. If it does, state the period.

a) $\frac{7}{9}$

b) $1\frac{11}{12}$

c) $\frac{19}{20}$

b) $-\frac{19}{40}$

Summary Rules

2. Convert the following to the equivalent fraction in lowest terms.

a) 0.235

b) 5.175

c) -3.1942

Summary Rules

Homework: p.186-187 #3, 4, 6, 9