Name_____ Date_____

Mrs. Roumbos 8R Period_____

Converting Rational Numbers

I. Every number has a decimal expansion. The rational numbers are those with decimal expansions that **terminate** or eventually **repeat** in a single digit, a block of digits, or zeros. All those that don't terminate or repeat are irrational.

II. A rational number is any number that can be written as a fraction $\frac{n}{d}$, where n (numerator) and d (denominator) are integers and $d \neq 0$. (can't divide by 0)

III. Simplifying Fraction

A) Steps: Divide both the numerator and the denominator by the Greatest Common factor (GCF) until they have no common factors other than 1. (prime #'s)

B) Examples:

1) 2) 3) 4)

IV. Writing a **terminating** decimal as a fraction-

A) Steps: 1) Identify the place value of the digit farthest to the right

2) Write all of the digits after the decimal point as the numerator with the place value as the denominator

Place Values

B) Examples: Convert the following decimals to fractions. (in simplest form)

1) 2) 3) 4)

V. Writing a **repeating** decimal as a fraction

A) Steps: 1) Identify the digits that repeat. Those numbers become your numerator.

2) The amount of digits in the numerator is the amount of 9's you place in the denominator.

B) Examples: Convert the following decimals to fractions. (in simplest form)

1) 2) 3) 4)

VI Writing a fraction as a decimal-

A) Steps: Divide the numerator by the denominator (use long division)

$$\frac{8}{13} = 13\overline{)8}$$

B) Examples: Convert the following fractions to decimals.

1) 2) 3) 4)