Math 9 – Unit 1: Real Numbers Name: _____

Lesson #1: Rational and Irrational Numbers Date: _____

Learning Goal: We are learning to relate rational numbers to decimals, fractions, and integers.

Welcome to the wonderful and beautiful world of Mathematics. Math is a language with its own syntax, grammar, and rules. Also, for Math to be readable and elegant (yes, it can be elegant), it needs to be written in a certain way. It is essential that you learn and adapt to this structure. First, we begin by looking at real numbers.

A real number is

Another set of numbers of interests are integers. Integers are

Within the real numbers are two different sets (or types) of numbers:

A rational number is:

An irrational number is:

State if the following are rational or irrational:

a) $\frac{1}{2}$ b) $\frac{-3}{0}$ c) $\frac{-0}{4}$ d) $\sqrt{5}$ c) $\sqrt{-9}$

Rational numbers can be represented as fractions or decimals. In decimal form, it can _____ or _____. A _____ decimal has a period and a length of period.

Write the fraction as a decimal, then state the period and length of period:

a) $\frac{2}{3}$ b) $\frac{10}{7}$ c) $\frac{5}{12}$

If the decimal is a terminating decimal, it can be quickly converted to a fraction. (Repeating decimals can be converted, but it can be more complicated and we will not do it here.) The denominator is the place value of the right-most digit. The numerator is the number without the decimal. To finish it off, simplify the fraction to lowest terms.

Write the decimal as a fraction in lowest terms:

a) 0.6 b) 1.42 c) -0.875 d) -3.25

Put the following numbers in order from lowest to highest:

$\frac{1}{3}, 0.33, \frac{9}{24}, \sqrt{10}, \frac{3}{10}$

Success Criteria:

- I can identify rational and irrational numbers
- I can convert between decimals and fractions
- I can state the period and length of period of a repeating decimal