Math 9 – Unit 1: Real Numbers Name: _____

Lesson #1: Rational and Irrational Numbers Date: _____

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 most right 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:

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