**Math 8 Unit 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Understanding Rational and Irrational Numbers**

All numbers can be written with a decimal point.

1. -2 = \_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 5 = \_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_

You can expand the decimal places of a number that already has digits to the right of the decimal point.

1. -2.2 = \_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. = \_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Each of the numbers above has a decimal expansion that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ either in \_\_\_\_\_\_\_\_\_\_\_\_ or in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Any number with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or that ends in \_\_\_\_\_\_\_\_\_\_\_ or in \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ any number with a decimal expansion that does \_\_\_\_\_\_\_\_\_\_\_ end in 0’s or in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ decimal digits.

1. \_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_
3. -\_\_\_\_\_\_\_\_\_\_\_\_

The decimal expansion of does not end in 0’s or in repeating decimal digits. It is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Every real numbers belongs to the set of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ numbers.

**Draw a Venn Diagram below:**

Answer the following questions and justify your answer.

1. Is 0.07 rational or irrational?
2. Is rational or irrational?
3. Is 10.049846 rational or irrational?
4. Is rational or irrational?

**Discussion:** How could you show that 4.95271 is a rational number using what we have discussed?

*Example A* Write each rational number in fraction form.

1. 3 \_\_\_\_\_\_\_\_\_\_\_\_
2. -0.9 \_\_\_\_\_\_\_\_\_\_\_\_
3. 3.03 \_\_\_\_\_\_\_\_\_\_\_\_

*Example B* Convert the rational number to a fraction.

*Example C* Convert to a fraction.

**Discussion**

What steps could you use to express the decimal as a fraction?