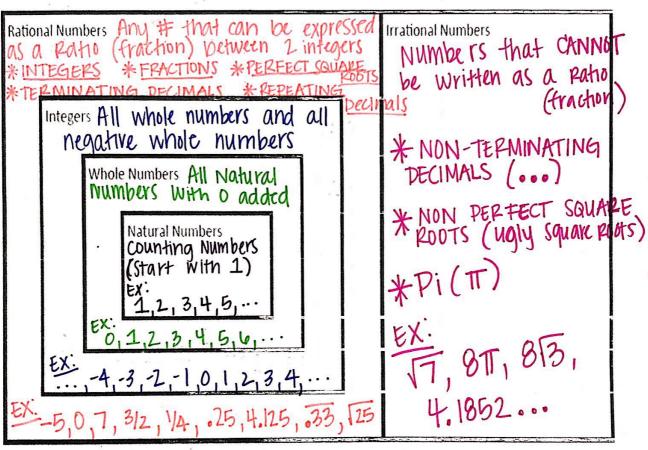
# The Real Number System



### Rational and Irrational Numbers Notes

**Today's Question:** What is the result of the product of a rational and irrational number? (MCC9-12.N.RN.3)



#### **Rational Numbers:**

Can be expressed as the quotient of two integers (i.e. a fraction) with a denominator that is not zero. Many people are surprised to know that a repeating decimal is a rational number.

Examples: -5, 0, 7, 3/2, 0.26

•  $\sqrt{9}$  is rational - you can simplify the square root to 3 which is the quotient of the integers 3 and 1.

#### Irrational Numbers:

Can't be expressed as the quotient of two integers (i.e. a fraction) such that the denominator is not zero.

Examples:  $\sqrt{7}$ ,  $\sqrt{5}$ ,  $\pi$ 

## re rational or irrations

Decide whether the following numbers are rational or irrational?

- -. √37 I
  - $\cdot \frac{3}{7}$
  - 7.23
  - -6.2124
  - (243)
  - · √25 P
  - 4π I
  - 1.524... I
  - √<del>36</del>

- $\sqrt{2}+5$   $\Box$
- $\frac{15}{3}$  = 5-8 = -3 R
- · 18.12 = 116 = 4 P
- · -1/5+1/5 = 0 = R
- $3\sqrt{3} + \sqrt{27}$  $3\sqrt{3} + 3\sqrt{3} = 1/3$  I
- 6π-π = 5T I