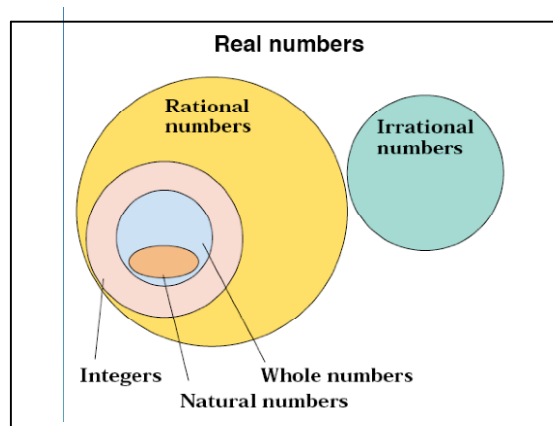


The Real Number System

You have studied whole numbers, integers, and rational numbers. Rational numbers include terminating and repeating decimals as well as the square roots of perfect squares. Numbers that do not terminate or repeat are called **irrational numbers**.

Irrational Numbers	An irrational number that cannot be expressed as $\frac{a}{b}$, where a and b are integers and $b \neq 0$. The square roots of numbers that are not perfect squares are irrational. You can use a calculator to find approximate square roots with numbers such as $\sqrt{11}$ and $\sqrt{27}$.
Real Numbers	The sets of rational and irrational numbers combine to form the set of real numbers. The graph of all real numbers is the entire number line.



Practice:

Let R = real numbers, Q = rational numbers, Z = integers, W = whole numbers, and I = irrational numbers. Name all sets of numbers to which each real number belongs.

1. $-\frac{7}{12}$

2. $0.\overline{27}$

3. $-\sqrt{16}$

Estimate each square root to the nearest tenth.

4. $\sqrt{10}$

5. $-\sqrt{31}$

6. $\sqrt{77}$

7. $\sqrt{124}$