1.1 Apply Properties of Real Numbers

TEKS a.1, a.6

Before You performed operations with real numbers.

Now You will study properties of real numbers.

Why? So you can order elevations, as in Ex. 58.

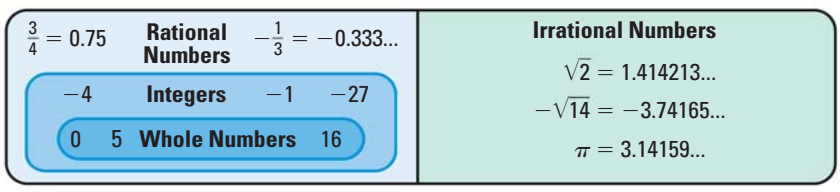
Key Vocabulary
- **opposite**
- **reciprocal**

KEY CONCEPT *For Your Notebook*

Subsets of the Real Numbers

The *real numbers* consist of the *rational numbers* and the *irrational numbers*. Two subsets of the rational numbers are the *whole numbers* (0, 1, 2, 3, . . .) and the *integers* (. . . , −3, −2, −1, 0, 1, 2, 3, . . .).

REAL NUMBERS



Rational Numbers
- can be written as quotients of integers
- can be written as decimals that terminate or repeat

Irrational Numbers
- cannot be written as quotients of integers
- cannot be written as decimals that terminate or repeat

NUMBER LINE Real numbers can be graphed as points on a line called a *real number line*, on which numbers increase from left to right.

EXAMPLE 1 Graph real numbers on a number line

Graph the real numbers $-\frac{5}{4}$ and $\sqrt{3}$ on a number line.

Solution

Note that $-\frac{5}{4} = -1.25$. Use a calculator to approximate $\sqrt{3}$ to the nearest tenth: $\sqrt{3} \approx 1.7$. (The symbol $\approx$ means *is approximately equal to*.)

So, graph $-\frac{5}{4}$ between −2 and −1, and graph $\sqrt{3}$ between 1 and 2, as shown on the number line below.