Lesson 1-3  
Exploring Real Numbers

Lesson Objectives
- Classify numbers
- Compare numbers

NAEP 2005 Strand: Number Properties and Operations
Topic: Number Sense
Local Standards: ____________________________

Vocabulary and Key Concepts

Real Numbers

Natural numbers are ________________
1, 2, 3, ...

Whole numbers are ________________
0, 1, 2, 3, ...

Integers are ________________
... -2, -1, 0, 1, 2, ...

Rational numbers are ________________

Irrational numbers are ________________

Decimal representations of each of these are nonrepeating and nonterminating.
Real numbers are

A counterexample is

An inequality is

Opposites are

Absolute value is

Examples

Classifying Numbers
Name the set(s) of numbers to which each number belongs.

a. \(-13\)
b. \(3.28\)

Using Counterexamples
Determine whether the statement is true or false. If it is false, give a counterexample.

All negative numbers are integers.
A negative number can be a \(\text{ },\) such as \(-\frac{2}{3}\). This is not an integer. The statement is

Ordering Fractions
Write \(\frac{3}{4}\), \(-\frac{7}{12}\), and \(-\frac{5}{8}\) in order from least to greatest.

Write each fraction as a decimal.

Order the decimals from least to greatest.

From least to greatest, the fractions are , , and .

Finding Absolute Value
Find each absolute value.

a. \(|-2.5|\) \(-2.5\) is units from 0 on a number line. \(|-2.5| = \)
b. \(|7|\) \(7\) is units from 0 on a number line. \(|7| = \)
Quick Check

1. Name the set(s) of numbers to which each number belongs.
   a. $-12$
   b. $\frac{5}{12}$
   c. $-4.67$
   d. $6$

2. Is each statement true or false? If it is false, give a counterexample.
   a. All whole numbers are integers.
   b. No fractions are whole numbers.

3. Write $\frac{1}{12}, -\frac{2}{3},$ and $-\frac{5}{8}$ in order from least to greatest.

4. Find each absolute value.
   a. $|5|$
   b. $|-4|$
   c. $|-3.7|$
   d. $|\frac{5}{7}|$