

# Lesson 1-3 (pp. 17-23)

## Exploring Real Numbers

<p><b>Lesson Objectives</b></p> <ul style="list-style-type: none"> <li>1 Classify numbers</li> <li>2 Compare numbers</li> </ul>	<p><b>NAEP 2005 Strand:</b> Number Properties and Operations</p> <p><b>Topic:</b> Number Sense</p> <p><b>Local Standards:</b> _____</p>
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### Vocabulary and Key Concepts

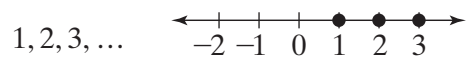
**Real Numbers**

	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; height: 20px; width: 50%;"></td> <td style="border: 1px solid black; height: 20px; width: 50%;"></td> </tr> <tr> <td style="text-align: center;"><math>\sqrt{10}</math></td> <td style="text-align: center;"><math>-\sqrt{123}</math></td> </tr> <tr> <td style="text-align: center;"><math>\pi</math></td> <td style="text-align: center;"><math>0.101001000\dots</math></td> </tr> <tr> <td style="text-align: center;"><math>\sqrt{\frac{2}{3}}</math></td> <td style="text-align: center;"><math>\sqrt{1.6}</math></td> </tr> </table>			$\sqrt{10}$	$-\sqrt{123}$	$\pi$	$0.101001000\dots$	$\sqrt{\frac{2}{3}}$	$\sqrt{1.6}$
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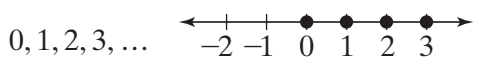
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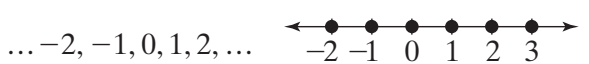
Natural numbers are \_\_\_\_\_



Whole numbers are \_\_\_\_\_



Integers are \_\_\_\_\_

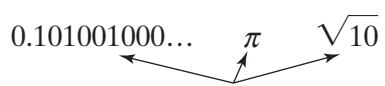


Rational numbers are \_\_\_\_\_

\_\_\_\_\_

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**

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

a. -13

b. 3.28

**2 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 , such as  $-\frac{2}{3}$ . This is not an

integer. The statement is .

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

$-\frac{3}{4} =$

$-\frac{7}{12} =$

$-\frac{5}{8} =$

Write each fraction as a decimal.

<  <  Order the decimals from least to greatest.

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

**4 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.  $|7| =$

**Check Understanding**

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.  $|\frac{5}{7}|$