

Math 45 Handout for 1.3 The Number Systems and the Real Number Line

Objectives:

1. Classify numbers as natural, whole, integer, rational, irrational, real
2. Plot points with fractional or decimal parts on a number line.
3. Use inequalities to compare two numbers.
4. Evaluate expressions with absolute values.

Write the set.

- 1) C is the set of integers between -5 and 3.

List all the elements of B that belong to the given set.

2) $B = \{11, \sqrt{7}, -24, \frac{0}{7}, \sqrt{4}, 0.33, -7\pi, 0.444.....\}$

Natural Numbers

Whole Numbers

Integers

Rational Numbers

Irrational numbers

Real Numbers

Answer True or False to the statement.

- 3) Every rational number is an integer.
- 4) Every whole number is a real number.
- 5) Some rational numbers are irrational.
- 6) Some rational numbers are integers.

Plot the points in the set on a real number line. Use correct scale and label each point.

7) $\left\{-1, \frac{5}{3}, -\frac{17}{3}, -3\right\}$

8) $\{-1.75, 5.25, 1, 3\}$

$$9) \left\{ 3, 5\frac{2}{3}, -1\frac{2}{3}, 1 \right\}$$

Replace the ? with the correct symbol $>$, $<$, $=$.

$$10) -7 ? 0$$

$$11) 10 ? -84$$

$$12) -2.5 ? -1.7$$

$$13) \frac{8}{2} ? \frac{12}{3}$$

$$14) \frac{2}{5} ? \frac{5}{9}$$

$$15) -\frac{5}{7} ? -\frac{3}{10}$$

$$16) -\frac{3}{7} ? -\frac{5}{8}$$

$$17) |-2| ? |-17|$$

$$18) |-9.5| ? |-9|$$

$$19) |-11| ? \frac{33}{-3}$$