

**Concept and Vocabulary:**

1. The set  $\{1, 2, 3, 4, 5, \dots\}$  is called the set of \_\_\_\_\_ numbers.
2. The set  $\{0, 1, 2, 3, 4, 5, \dots\}$  is called the set of \_\_\_\_\_ numbers.
3. The set  $\{\dots, -4, -3, -2, -1, 0, 1, 2, 3, 4, \dots\}$  is called the set of \_\_\_\_\_ numbers.
4. The set of numbers in the form  $\frac{a}{b}$ , where  $a$  and  $b$  are integers and  $b \neq 0$ , is called the set of \_\_\_\_\_ numbers.
5. The set of numbers which may not be written in the form  $\frac{a}{b}$ , where  $a$  and  $b$  are integers and  $b \neq 0$ , is called the set of \_\_\_\_\_ numbers.
6. Every real number is either a/an \_\_\_\_\_ number or a/an \_\_\_\_\_ number.
7. The notation  $2 < 5$  means that 2 is to the \_\_\_\_\_ of 5 on a number line.
8. The distance from 0 to  $a$  on a numberline is called the \_\_\_\_\_ of  $a$ , denoted by \_\_\_\_\_.

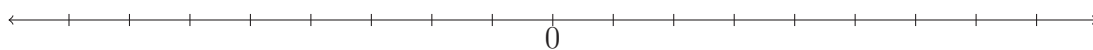
**Practice Exercises:**

In exercises 1 - 7 odd, write a positive or negative integer that describes each situation.

- |                                       |   |
|---------------------------------------|---|
| 1. Meteorology: $20^\circ$ below zero | 5. Banking: A withdrawal of \$3000.00               |
| 3. Health: A gain of 8 pounds         | 7. Economics: A budget deficit of 4 billion dollars |

In exercises 9 - 19 odd, graph each number on the number line provided below.

- |        |                    |                     |
|--------|--------------------|---------------------|
| 9. 2   | 13. $3\frac{1}{2}$ | 17. -1.8            |
| 11. -5 | 15. $\frac{11}{3}$ | 19. $-\frac{16}{5}$ |



In exercises 21 - 31 odd, express each rational number as a decimal.

21.  $\frac{3}{4}$

27.  $\frac{9}{11}$

23.  $\frac{7}{20}$

29.  $-\frac{1}{2}$

25.  $\frac{7}{8}$

31.  $-\frac{5}{6}$

In exercises 33 and 35, list all of the numbers from the given set which are in the indicated set.

33.  $\{-9, -\frac{4}{5}, 0, 0.25, \sqrt{3}, 9.2, \sqrt{100}\}$

35.  $\{-11, -\frac{5}{6}, 0, 0.75, \sqrt{5}, \pi, \sqrt{64}\}$

a. Natural numbers

a. Natural numbers

b. Whole numbers

b. Whole numbers

c. Integers

c. Integers

d. Rational numbers

d. Rational numbers

e. Irrational numbers

e. Irrational numbers

f. Real numbers

f. Real numbers

37. Give an example of a whole number that is not a natural number.
39. Give an example of a rational number that is not an integer.
41. Give an example of a number that is an integer, a whole number, and a natural number.
43. Give an example of a number that is an irrational number and a real number.

In exercises 45 - 61 odd, insert either  $<$  or  $>$  in the blank between each pair of numbers to make a true statement.

45.  $\frac{1}{2}$  \_\_\_\_\_ 2
47. 3 \_\_\_\_\_  $-\frac{5}{2}$
49.  $-4$  \_\_\_\_\_  $-6$
51.  $-2.5$  \_\_\_\_\_ 1.5
53.  $-\frac{3}{4}$  \_\_\_\_\_  $-\frac{5}{4}$
55.  $-4.5$  \_\_\_\_\_ 3
57.  $\sqrt{2}$  \_\_\_\_\_ 1.5
59.  $0.\bar{3}$  \_\_\_\_\_ 0.3
61.  $-\pi$  \_\_\_\_\_  $-3.5$

In exercises 63 - 69 odd, determine whether each inequality is true or false.

63.  $-5 \geq -13$
65.  $-9 \geq -9$
67.  $0 \geq -6$
69.  $-17 \geq 6$

In exercises 71 - 77 odd, find each absolute value.

71.  $|6|$
73.  $|-7|$
75.  $|\frac{5}{6}|$
77.  $|-\sqrt{11}|$

In exercises 79 - 85 odd, insert either  $<$ ,  $>$ , or  $=$  in the blank to make a true statement.

79.  $|-6|$  \_\_\_\_\_  $|-3|$
81.  $|\frac{3}{5}|$  \_\_\_\_\_  $|-0.6|$
83.  $\frac{30}{40} - \frac{3}{4}$  \_\_\_\_\_  $\frac{14}{15} \cdot \frac{15}{14}$
85.  $\frac{8}{13} \div \frac{8}{13}$  \_\_\_\_\_  $|-1|$

### Applications:

In exercises 87 - 93 odd, decide whether natural numbers, whole numbers, integers, rational numbers, or all real numbers are the most appropriate for the given situation.

87. Shoe sizes of students on campus

89. Temperatures in weather reports

91. Values of  $d$  given by the formula  $d = \sqrt{1.5h}$ , where  $d$  is the distance, in miles, that you can see to the horizon from a height of  $h$  feet

93. The number of pets a person has