

Description notation	Example: $S =$ set of even whole numbers
Roster notation	Example: $\{0, 2, 4, 6, 8 \dots\}$
Set-builder notation	Example: $S = \{x \mid x \text{ is an even whole number}\}$

Use the following sets $A = \{2, 4\}$, $B = \emptyset$, $C = \{2, 4, 6, 8, 10\}$, and $D = \{-2, -1, 0, 1, 2\}$ for Exercises 1–8. Tell if each statement is true or false.

1. $1 \in D$ _____ 2. $1 \in A$ _____ 3. $-2 \in D$ _____ 4. $-3 \in D$ _____
 5. $A \subset C$ _____ 6. $B \subset D$ _____ 7. $C \subset A$ _____ 8. $B \subset A$ _____
 9. Write all the possible subsets of the set $\{x, y\}$. _____

Define each set using roster notation.

10. odd numbers greater than 5

11. even negative numbers with a value less than -3

Define each set using roster notation.

1. odd natural numbers greater than 10

2. weeks having 8 days

3. integers less than -3

4. $\{x \mid x \text{ is a positive integer and } x > 4\}$

Determine if each statement is *true* or *false*.

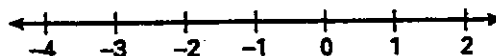
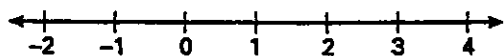
5. $-2 \in \{x \mid x \text{ is a whole number}\}$ _____
6. $\{4, 7, 9\} \subset \{1, 2, 3, \dots\}$ _____
7. $5 \in \{x \mid x \text{ is a natural number and } 3 \leq x < 5\}$ _____

Tell whether each statement is true or false.

1. $\sqrt{2}$ is a rational number. _____ 2. -42 is an integer. _____
 3. 0 is a natural number. _____ 4. $-\frac{3}{5}$ is an integer. _____
 5. 213 is a whole number. _____ 6. 0.31131113 is an irrational number. _____

Graph each set of numbers on a number line.

7. $\{\frac{1}{5}, -1\frac{3}{8}, \sqrt{2}, 3.9\}$ 8. real numbers less than or equal to -1



Evaluate each expression where $b = -0.8$.

9. $-b$ _____ 10. $-(-b)$ _____ 11. $|b|$ _____
 12. $-|b|$ _____ 13. $|-b|$ _____ 14. $-|-b|$ _____

Name _____

EXERCISES

Determine if each statement is *true* or *false*.

1. 8 is an irrational number. _____
2. 5 is a real number. _____
3. $\sqrt{4}$ is not a natural number. _____
4. $-3.1235278\dots$ is an integer. _____
5. $\frac{6}{7}$ is a rational number. _____
6. π is not a real number. _____
7. All irrational numbers are real numbers. _____
9. A natural number is a rational number. _____
8. Some rational numbers are integers. _____

Graph each set of numbers on a number line on your own paper.

10. $\{-2\frac{1}{2}, -1, 0, \sqrt{5}, 4.75, 8\frac{2}{3}\}$
11. natural numbers less than 5
12. real numbers less than or equal to -2
13. real numbers greater than 8
14. whole numbers less than 9
15. integers greater than or equal to -4
16. integers from -5 to 2 inclusive
17. real numbers from -7 to -1 inclusive