Name: Date:
Instructor: Section:

Practice Set 1.2

Use the choices below to fill in each blank.

set builder notation	subset	elements	rational numbers
roster form	empty set	real numbers	natural numbers

1. The objects in a set are called _____.

2. The intersection of the set of rational numbers and the set of irrational numbers is called the
    _____.

3. The union of the set of rational numbers and the set of irrational numbers is called the _____.

4. The natural numbers are a _____ of the rational numbers.

5. The set $E = \{1, 2, 3, 4, 5\}$ is written in the form called _____.

6. The set $E = \{x \mid x < 6 \text{ and } x \in N\}$ is written in the form called _____.

Insert $>$ or $<$ between the numbers to make a true statement.

7. 1   1.01   7._____

8. −5   8   8._____

9. $-\dfrac{7}{9}$ $-\dfrac{11}{13}$ 9._____

10. 0   7.23   10._____

List each set in roster form.

11. $\{ x \mid x \geq -3 \text{ and } x \in I \}$ 11._____

12. $\{x \mid x \text{ is a whole number between } -1 \text{ and } 1\}$ 12._____

13. $\{x \mid -\dfrac{11}{12} < x < \dfrac{9}{2} \text{ and } x \in N\}$ 13._____

List each set in set builder notation.

14. real numbers between 8 and 9   14._____

15. natural numbers greater than or equal to 5   15._____

Find $A \cup B$ and $A \cap B$ for each set A and B.

16. $A = \{\dots, -4, -2, 0, 2, 4, \dots\}$, $B = \{\dots -5, -3, -1, 1, 3, 5 \dots\}$ 16. $A \cup B =$ _____

                                                                         $A \cap B =$ _____

17. $A = \{0, 1, 2, 3\}$, $B = \{1, 2, 3, 4\}$ 17. $A \cup B =$ _____

                                                                         $A \cap B =$ _____

Practice Set 1.2

Consider the set $\left\{-6,\ 5,\ \dfrac{3}{4},\ -\dfrac{2}{5},\ 0,\ \sqrt{3},\ -\sqrt{6}\ ,-1.01,\ 1.\overline{57}\right\}$.

List the elements that are:

18. whole numbers   18._____

19. natural numbers   19._____

20. integers   20._____

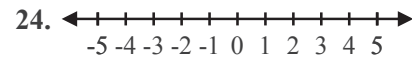21. rational numbers   21._____
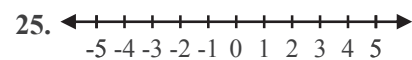
22. irrational numbers   22._____

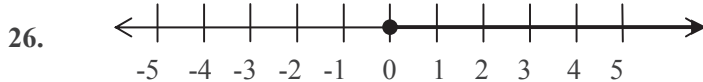23. real numbers   23._____

Illustrate each set on a number line.

24. $\{x\mid x \le 0 \text{ and } x \in \mathbb{R}\}$ 24.
-5 -4 -3 -2 -1 0 1 2 3 4 5

25. $\{x\mid -\dfrac{3}{7} < x < \dfrac{7}{3} \text{ and } x \in N\}$ 25.
-5 -4 -3 -2 -1 0 1 2 3 4 5

Express in set builder notation the set of numbers on the number line.

26.
-5 -4 -3 -2 -1 0 1 2 3 4 5

                                        26._____

27.
-5 -4 -3 -2 -1 0 1 2 3 4 5
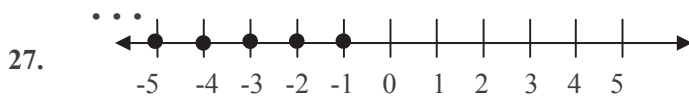
                                        27._____

Determine whether the first set is a subset of the second set.

28. *N, W*   28._____

29. *I, Q*   29._____

Problem Solving

30. The table below shows the three most popular names for girls born in the United States in the years 1880 and 2005. [Source: www.ssa.gov]

1880	2005
Mary	Emily
Anna	Emma
Emma	Madison

30. $\cup =$ _____

_____

$\cap =$ _____

Find the union and intersection of these two sets.

    Angel/Runde, *Intermediate Algebra for College Students,* 9e