

## Section 2.4 – Sets

### Problem Set 1

**Draw the graph of each set on a number line.**

1. The set of all real numbers strictly less than 1, i.e. not including 1.
2. The set of all real numbers between 4 and 6, including 4 and 6, and the numbers -3 and -7.
3. The set of all positive integers.
4. The set of all real numbers between 5 and 8, excluding 5, and the set of numbers between 6 and 10, excluding 10.
5. The natural numbers greater than 6.
6. The negative real numbers less than -5.

**Let  $S = \{-3, 4, 8, 9, 10, 11, 13, 16, 17\}$ . Which of the following are true?**

7.  $7 \in S$                       8.  $-3 \in S$                       9.  $\{2, 4, 6\} \subset S$                       10.  $-4 \notin S$   
11.  $S \subset \mathbb{Q}$                       12.  $S \subset \mathbb{Z}$

**For each of the following pairs of sets, identify whether or not one is a subset of another and, if so, which one is the subset.**

13.  $C = \{x, y, z\}$                       14.  $A = \{2, 4, 6, 8, 10\}$                       15.  $E = \{a, y, z, 2, 6, 8\}$   
 $D = \{x, z, w, p\}$                        $B = \{4, 6, 10\}$                        $F = \{a, 2\}$
15.  $G = \{\text{deer, rabbits, cats, dogs, zebras}\}$                       16.  $M = \mathbb{N}$   
 $H = \{\text{deer, cats, zebras}\}$                        $N = \mathbb{Q}$
17.  $P = \{\text{all U.S. cities}\}$                       18.  $X = \{\text{positive odd numbers}\}$   
 $Q = \{\text{U.S. cities west of the Mississippi river}\}$                        $Y = \{\text{even numbers}\}$