Section 2.4 – Sets

Problem Set 2

Draw the graph of each set on a number line.

1. The set of all natural numbers.
2. The set of all real numbers between 4 and 7 and the integers between 1 and 3, including 1 and 3.
3. The set of all real numbers greater than or equal to 2.
4. The set of all real numbers between 3 and 6, excluding 3, and the set of numbers between 4 and 8, excluding 9.
5. The positive integers greater than 4.
6. The negative real numbers greater than -12.

Let S = {-3, -2, -1, 0, 2, 4, 6, 8, 10 }. Which of the following are true?

7. $5 \in S$
8. $-2 \in S$
9. $\{-3, 2, 4\} \subset S$
10. $-1 \notin S$
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. A = { 2, 3, 4, 7, 18 }
    B = { 2, 3, 9}
14. C = { m, n, o, p, q }
    D = { m }
15. E = { q, -2 }
    F = { q, e, w, -2, 0, 2 }
16. $M = \mathbb{Q}$
    $N = \mathbb{R}$
18. X = { even integers }
    Y = { even natural numbers }
15. G = { New York, Moscow, London, Paris, Rome }
    H = { New York, London, Rome, Berlin }
17. P = { rivers in the United States }
    Q = { rivers in North America }