Section 2.4 – Sets

Problem Set 3

Draw the graph of each set on a number line.

1. The set of all negative numbers.
2. The set of all real numbers strictly less than 1.
3. The set of all natural numbers between -10 and 17.
4. The set of all real numbers between 7 and 12, excluding 8.
5. The natural numbers greater than 7.
6. The negative real numbers greater than 3 and less than 12.

Let S = { -9, -7, -5, -3, -1, 0, 2, 4, 8, 12, 14 }. Which of the following are true?

7. $9 \in S$
8. $-5 \in S$
9. $\{4, 6, 12\} \subset S$
10. $-5 \notin S$
11. $S \subset \mathbb{Q}$
12. $S \subset \mathbb{R}$

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 = { 5, 7, 13}
    B = { 1, 5, 7, 9, 13 }
14. C = { *m, r, q, a* }
    D = { *m, q, r, b* }
15. E = { *c*, *d*, *e*, 1, 5, 6 }
    F = { 1, 6, 5*, c, d, e* }
15. G = { hammers, nails, screws, wrenches, bolts }
    H = { nuts, bolts }
16. $M = \mathbb{R}$
    $N = \mathbb{Q}$
17. P = { U.S. states that border Canada }
    Q = { U.S. states that border Mexico }
18. X = { positive integers }
    Y = { positive odd numbers }