

4.3 Practice Set

1. What is a compound inequality? Give an example.
2. What symbols are used in the different types of compound inequalities and what is the meaning of each?
3. Describe the process of finding the union of two sets.
4. Describe the process of finding the intersection of two sets.

Given the sets A, B and C below, find each of the following sets for problems 5 through 9.

$$A = \{1,2,3,4,5,6\}$$

$$B = \{2,4,6\}$$

$$C = \{7,8,9\}$$

5. $A \cup C$
6. $B \cap A$
7. $B \cup C$
8. $B \cap C$
9. $A \cup B$

Solve each of the following compound inequalities, graph your solution on a number line and write your solution in interval notation.

10. $x \leq 2$ and $x \geq -4$
11. $2x + 3 \leq 9$ and $x \leq 2$
12. $x \leq -3$ or $x \geq 5$

13. $5x - 8 > 12$ or $x > -1$
14. $-2 < x - 4 < 3$
15. $-1 \leq \frac{4x+3}{5} < 2$
16. $-4x - 13 \leq 11$ or $7x > x + 12$
17. $5x + 3 > 0$ or $3x < -1$
18. $4(x - 2) < 0$ and $2x - 5 < 3x$
19. $-6x > 18$ and $2x - 7 > 1$
20. $3x > 9$ or $-\frac{4}{5}x - 1 < 7$

Distributed Practice Problems

Solve each of the following equations for the indicated variable.

21. $s = rt - 5ry^3$ for r
22. $m = \frac{k}{4}(x + y)$ for y
23. $5 + |7x - 13| = 6$
24. $4^{3x-5} = 8^x$
25. $\log_7 x + \log_7(x - 48) = 2$