

Set Operations and Compound  
Inequalities

1. Use  $A = \{2, 3, 4, 5, 6\}$ ,  $B = \{1, 3, 5, 7, 9\}$ ,  
and  $C = \{2, 4, 6, 8\}$  to find each set

$$A \cup C$$

2. Use  $A = \{2, 3, 4, 5, 6\}$ ,  $B = \{1, 3, 5, 7, 9\}$ ,  
and  $C = \{2, 4, 6, 8\}$  to find each set

$$A \cap C$$

3. Use the graph of the inequality to find  
each set.

$$A = \{x \mid x \geq 3\}; B = \{x \mid x < 1\}$$

Find (a)  $A \cap B$  and (b)  $A \cup B$

4. Use the graph of the inequality to find  
each set.

$$E = \{x \mid x \leq 3\}; F = \{x \mid x \geq -1\}$$

Find (a)  $E \cap F$  and (b)  $E \cup F$

5. Solve each compound inequality. Graph  
the solution set.

$$x - 5 \leq 2 \quad \text{and} \quad 3x - 2 \geq -8$$

6. Solve each compound inequality. Graph the solution set.

$$-10 < 5x + 5 \leq 3$$

7. Solve each compound inequality. Graph the solution set.

$$0 < \frac{5}{3}x - 2 \leq 4$$

8. Solve each compound inequality. Graph the solution set.

$$-4 < -7(x-1) < 10$$

9. Solve each compound inequality. Graph the solution set.

$$4x \geq 9x + 10 \quad \text{or} \quad x < 3x - 6$$