

### Solving and Graphing Inequalities

**Question 1.** Solve each of the following inequalities.

- |                         |                      |
|-------------------------|----------------------|
| a) $x + 2 > 5$          | f) $-x > 5$          |
| b) $x - 4 < 0$          | g) $-3y \geq 9$      |
| c) $2 - y \geq 7$       | h) $4x - 1 < 2x + 5$ |
| d) $2 + x \leq 2x - 10$ | i) $2 - x > 2 + 3x$  |
| e) $4x < 0$             |                      |

**Question 2.** Solve each of the following compound inequalities.

- $1 < x + 2 \leq 5$
- $3 < x - 4 < 7$
- $1 \leq -x \leq 4$
- $-2 \leq 2 - 3x < 0$
- $x + 1 < 3x - 2 \leq 4 + x$
- $5 - x \leq x \leq -x + 7$
- $2x + 1 < x < 5 + 2x$

**Question 3.** Solve each of the following inequalities.

- |                     |                      |
|---------------------|----------------------|
| a) $ x  < 2$        | e) $ 2x + 3  \geq 1$ |
| b) $ x  > 3$        | f) $ 5x - 10  < 8$   |
| c) $ -2x  < 10$     | g) $ 3 - x  < 0$     |
| d) $ x - 1  \leq 4$ |                      |

**Question 4.** Graph the following inequalities on a number line.

- |                   |                              |
|-------------------|------------------------------|
| a) $x > 3$        | f) $-2 \leq x \leq 6$        |
| b) $x < -1$       | g) $x < 2$ or $x > 7$        |
| c) $x \geq 10$    | h) $x \leq -1$ or $x \geq 0$ |
| d) $x \leq -3$    | i) $x < 0$ or $x \geq 5$     |
| e) $1 < x \leq 3$ |                              |

**Question 5.** Graph the following inequalities on a number line.

- $2x + 4 < 10$
- $2 - x \geq 5$
- $|x| < 5$
- $|-x| < 2$
- $|x - 1| < 3$
- $|2x + 1| \geq 4$
- $|5 - x| \leq 3$

**Question 6.** Graph the following inequalities in a coordinate plane.

- |                      |                        |
|----------------------|------------------------|
| a) $y > x + 1$       | e) $x + y > 0$         |
| b) $y \geq 2 - x$    | f) $x - y < 1$         |
| c) $y \leq 2x + 5$   | g) $2x + 3y \geq 4$    |
| d) $y < \frac{x}{2}$ | h) $y + 2x - 3 \leq 0$ |

You can check your answers on pages 271-273.