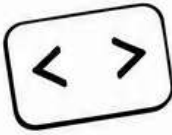
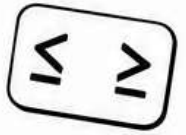


Solving Inequalities Worksheet



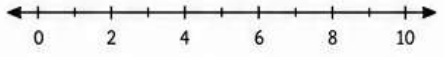
Solve each inequality. Show your work when needed. Write your answer in interval notation or graph it on the number line as indicated.



1. Solve each inequality. Write the solution set in interval notation.

- a) $x + 5 > 12$ _____
- b) $x - 7 \leq 3$ _____
- c) $4x > 16$ _____
- d) $6 - x \leq -2$ _____
- e) $-3x \geq 9$ _____
- f) $5x - 10 < 15$ _____

2. Solve each inequality. Graph the solution on the number line.

- a) $x > 3$ 
- b) $x \leq -1$ 
- c) $x \geq 5$ 
- d) $x < -4$ 
- e) $x \leq 7$ 
- f) $x > -2$ 

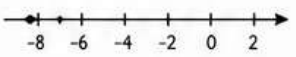
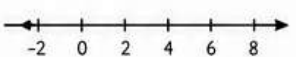
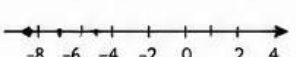
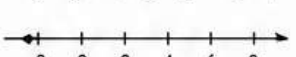
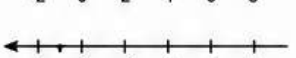
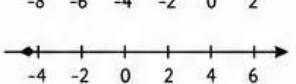
3. Solve the compound inequalities. Write the solution set in interval notation.

- a) $3 < x < 8$ _____
- b) $-5 \leq x \leq 4$ _____
- c) $x < -2$ or $x > 6$ _____
- d) $-1 \leq x < 5$ _____
- e) $x \leq -3$ or $x \geq 7$ _____
- f) $-4 < x \leq 9$ _____

4. Solve each inequality. Show your work.

- a) $2x - 5 \leq 11$
- b) $3x + 7 > -8$
- c) $-4x \leq 20$
- d) $5 - 3x < 14$
- e) $6x - 9 \geq 27$
- f) $-2x + 6 \leq -8$

5. Graph the solution set on the number line.

- a) $x \geq -3$ 
- b) $x < 4$ 
- c) $-6 \leq x \leq 2$ 
- d) $x > 1$ 
- e) $x \leq -5$ 
- f) $-1 < x < 5$ 

6. Word Problems. Solve each inequality and write your answer in interval notation.

- a) A movie ticket costs \$8. You have at most \$40. Write and solve an inequality for the number of tickets (t).

- b) A garden is at least 12 feet long. It is 3 feet longer than a flower bed. Write and solve an inequality for the length of the flower bed (f).

- c) You must be at least 15 years old to get a job. Write and solve an inequality for the age (a).

- d) A backpack weighs less than 20 pounds. It weighs 5 pounds already. Write and solve an inequality for the weight of items (w).

7. Solve and check. (Find the value of the variable.)

- a) $4x + 3 > 19$ _____
- b) $7 - 2x \leq -5$ _____
- c) $5x - 8 < 12$ _____
- d) $-3x + 6 \geq -12$ _____
- e) $9 - 4x > 1$ _____

8. Multiple Choice. Choose the correct solution set.

- a) $2x + 6 \leq 14$
A. $x \leq 4$ B. $x \geq 4$
C. $x < 4$ D. $x > 4$
- b) $-5x > 20$
A. $x > -4$ B. $x < -4$
C. $x \geq -4$ D. $x \leq -4$
- c) $3x - 9 \geq 6$
A. $x \geq 5$ B. $x \leq 5$
C. $x > 5$ D. $x < 5$
- d) $-2x + 8 < 0$
A. $x > 4$ B. $x < 4$
C. $x \geq 4$ D. $x \leq 4$
- e) $4 - x \leq 9$
A. $x \leq -5$ B. $x \geq -5$
C. $x < 5$ D. $x > 5$

9. True or False. Circle T or F.

- a) The solution to $x > 5$ is all numbers greater than 5. T F
- b) The solution to $x \leq -2$ includes -2 . T F
- c) $7x < 14$ is equivalent to $x < 2$. T F
- d) The solution to $-3x \geq 9$ is $x \geq -3$. T F
- e) $2x + 4 \leq 10$ is the same as $x \leq 3$. T F
- f) The solution to $x < -1$ or $x > 4$ is $(-1, 4)$. T F

10. Challenge. Write an inequality for each situation and solve.

- a) A number is more than 8 and less than 15. _____
- b) A number is at least -6 . _____
- c) A number is less than -9 or greater than 3. _____
- d) Solve: $4x - 7 \leq 17$ and graph the solution. _____

