

Goal 1: To identify solutions of inequalities
Goal 2: To graph and write inequalities



Identify Solutions of Inequalities

Examples

1 Identifying Solutions by Evaluating Is each number a solution of $3 + 2x < 8$?

a. -2

$$3 + 2x < 8$$

$$3 + 2(\square) < 8$$

$$3 - \square < 8$$

$$\square < 8$$

-2 is a solution.

b. 3

$$3 + 2x < 8$$

$$3 + 2(\square) < 8$$

$$3 + \square < 8$$

$$\square < 8$$

3 is not a solution.

← Substitute for x. →

← Simplify. →

← Compare. →

Practice: Is each number a solution of the inequality?

a. $2y + 1 > -5$

a. -4

b. -2

c. 4

b. $7x - 14 \leq 6x - 16$

a. 0

b. -4

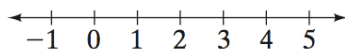
c. 2

Graphing Inequalities

$>$ greater than	$<$ less than	\leq less than or equal to	\geq greater than or equal to

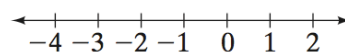
2 Graphing Inequalities

a. Graph $d < 3$.



The solutions of $d < 3$ are all the points to the of 3.

b. Graph $-3 \geq g$.



The solutions of $-3 \geq g$ are and all the points to the of -3.

Practice: Graph each inequality.

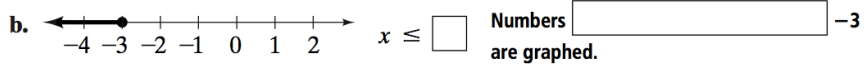
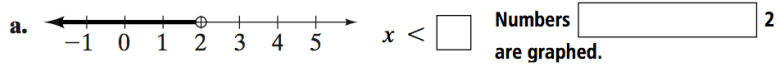
a. $x > 6$

b. $y \geq 10$

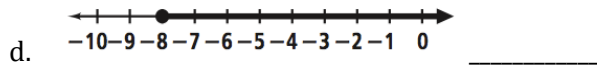
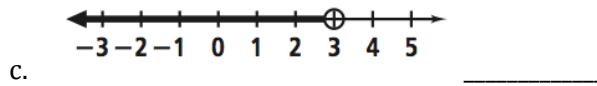
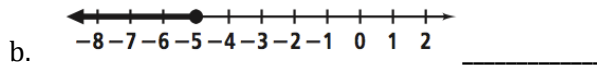
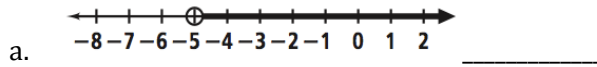
c. $-7 > a$

d. $w \leq -4$

③ Writing an Inequality From a Graph Write an inequality for each graph.



Practice: Write an inequality for each graph.



Additional Practice

Define a variable and write an inequality to model each situation.

18. The temperature in a refrigerated truck must be kept at or below 38°F. _____
19. The maximum weight on an elevator is 2000 pounds. _____
20. A least 20 students were sick with the flu. _____
21. The maximum occupancy in an auditorium is 250 people. _____
22. The maximum speed on the highway is 55 mi/h. _____
23. A student must have at least 450 out of 500 points to earn an A. _____
24. The circumference of an official major league baseball is at least 9.00 inches. _____

Goal 1: Solve multi-step inequalities with variables on one side
Goal 2: Solve multi-step inequalities with variables on both sides

Super Secret Rule of Inequalities

Example

① Using More Than One Step Solve $5 + 4b < 21$. Check the solutions.
Solve: _____ Check: _____

CA Standards Check

Solve each inequality. Check your solution.

1. a. $-3x - 4 \leq 14$

b. $5 < 7 - 2t$

c. $-8 < 5n - 23$

Examples

② Using the Distributive Property Solve $3x + 4(6 - x) < 2$.

③ Gathering Variables on One Side of an Inequality Solve $5(-3 + d) \leq 3(3d - 2)$.

Solve each inequality. Check your solution.

1. $2z + 7 < z + 10$

2. $4(k - 1) > 4$

4. $h + 2(3h + 4) \geq 1$

5. $r + 4 > 13 - 2r$

Write and solve an inequality that models each situation.

19. Ernest works in the shipping department loading shipping crates with boxes. Each empty crate weighs 150 lb. How many boxes, each weighing 35 lb, can Ernest put in the crate if the total weight is to be no more than 850 lb?

20. Beatriz is in charge of setting up a banquet hall. She has five tables that will seat six people each. If no more than 62 people will attend, how many tables seating four people each will she need?