

Lesson 8-5

Reinforce Understanding

Understand Inequalities and Their Solutions

I can graph the solutions of an inequality on a number line.

Worked model

A delivery van is safe when its load is at most 900 pounds. Graph the loads that are safe.

1. Write the inequality: let L = the pounds loaded, so $L \leq 900$.
2. Mark the boundary point at 900 with a CLOSED dot, because 900 is allowed.
3. Solutions are 900 and everything smaller, so draw the arrow pointing left.
4. Test a point under the arrow: 875 is allowed, which confirms the direction.

Answer: $L \leq 900$: a closed dot at 900 with an arrow pointing left.

Practice

Complete each exercise. Show the reasoning that supports your answer.

1. Sort by circle type: open or closed.

Write the name of the correct group on each line.

Groups: Open circle (not included) Closed circle (included)

- _____ $x > 4$
- _____ $x < 12$
- _____ $n > 0$
- _____ $x \geq 7$
- _____ $x \leq 3$
- _____ $n \geq 15$

2. Which graph represents $x < 5$?

Circle the letter of the best answer. Show how you know.

- A. Open circle at 5, shaded left
- B. Closed circle at 5, shaded left
- C. Open circle at 5, shaded right
- D. Closed circle at 5, shaded right

Show your work

3. Which graph represents $x \geq 3$?

Circle the letter of the best answer. Show how you know.

- A. Closed circle at 3, shaded right
- B. Open circle at 3, shaded right
- C. Closed circle at 3, shaded left
- D. Open circle at 3, shaded left

Show your work
