

**SHOW ALL WORK.**

Complete Parts A & B, OR Parts B & C

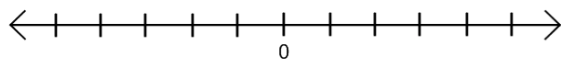
**PART A:**

1. Decide if -13 is a solution to the equation  $|b-1|=14$ .

2. Decide if -2 is a solution to the equation  $|32-6f|=20$ .

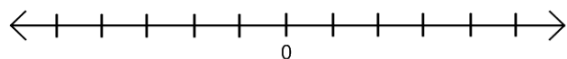
3. Solve the equation. Then graph the solution.

$$|x|=9$$

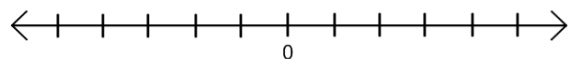


Solve the inequality. Then graph the solution.

4.  $|j| \leq 5$



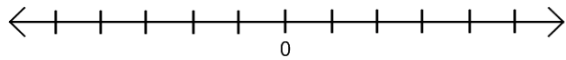
5.  $|k| > 4$



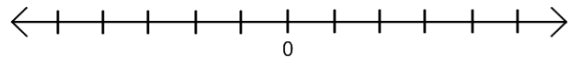
**PART B:**

Solve the equation. Then graph the solution.

6.  $|y| = -5$



7.  $|6 - p| = 4$



Solve the equation. Check for extraneous solutions.

8.  $|2d - 5| = 13$

9. Solve the equation  $\left| \frac{2}{3}z - 6 \right| = 12$

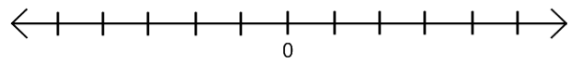
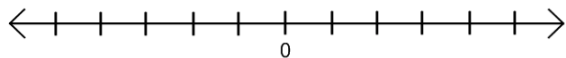
10.  $|x + 24| = -7x$

11.  $|9 - 2x| = 10 + 3x$

Graph the inequality. Then graph the solution.

12.  $|2x + 6| \geq 10$

13.  $|7 - 2r| < 19$



14. Which absolute value inequality represents the graph shown below?



- a)  $-1 < |x| < 5$       b)  $|x+2| < 3$       c)  $|x-2| < 3$       d)  $|x-2| < 3$

15. For the equation  $|ax+b|=c$  (where  $a$ ,  $b$ , and  $c$  are real numbers and  $a \neq 0$ ), describe the value(s) of  $c$  that yield two solutions, one solution, and no solution.

16. The recommended oven setting for cooking a pizza in a professional brick-lined oven is between 550-650 degrees F inclusive. Write an absolute value inequality for this temperature range.

**PART C:**

17. A baseball has a cushioned cork center called the pill. The pill must weigh 0.85 ounce, with a tolerance of 0.05 ounce.

a) Write an absolute value inequality that describes the acceptable weights for the pill of the baseball.

b) Solve the inequality to find the acceptable weights for the pill.

18. The depth finder on a fishing boat gives readings that are within 5% of the actual water depth. When the depth finder reading is 250 feet, the actual water depth  $x$  lies within a range given by the following inequality:  $|x-250| \leq 0.05x$

a) Write the absolute value inequality as a compound inequality.

b) Solve each part of the compound inequality for  $x$ . What are the possible actual water depths if the depth finder's reading is 250 feet?