Chapter Test

Determine whether each number is a solution of the given inequality.

1. $4z + 7 \geq 15$ **a.** -2 **b.** 2 **c.** 5

2. $-2g + 3 > 5$ **a.** -3 **b.** -1 **c.** 4

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

3. A student can take at most 7 classes.

4. The school track team needs at least 5 runners to compete at Saturday's meet.

5. Elephants can drink up to 40 gallons of water at a time.

6. Your cousin's early-morning paper route has more than 32 homes.

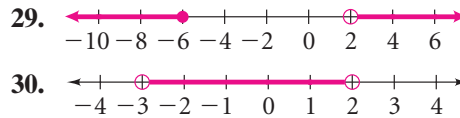**Write an inequality for each graph.**

7.

8.

9.

10.
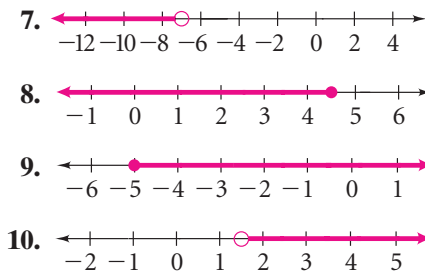
Solve each inequality. Graph the solution.

11. $z + 7 \leq 9$ **12.** $-16 \geq 4y$

13. $-\frac{1}{3}x < 2$ **14.** $8 - u > 4$

15. $-5 + 4t \leq 3$ **16.** $5w \geq -6w + 11$

17. $-\frac{7}{2}m < 14$ **18.** $6y - 7 < -2y + 13$

19. $|x - 5| \geq 3$ **20.** $|2h + 1| < 5$

21. $9 \leq 6 - b < 12$ **22.** $-10 < 4q < 12$

23. $4 + 3n \geq 1$ or $-5n > 25$

24. $10k < 75$ and $4 - k \leq 0$

Solve each equation. Check your solution.

25. $3(d - 1) > -4$ **26.** $5(-2 + b) < 3b + 2$

27. $3(m + 3) + 4 \leq 15$ **28.** $0.5(x + 3) - 2.1 \geq -1$

Write a compound inequality that each graph could represent.

29.

30.

Solve each equation. Check your solution.

31. $|4k - 2| = 11$ **32.** $23 = |n + 10|$

33. $|3c + 1| - 4 = 13$ **34.** $4|5 - t| = 20$

35. Writing Explain why the solution to $ax - 1 < 3$ is not $x < \frac{4}{a}$. Use solutions of the inequality with different values of a to support your explanation.

36. Open-Ended Write an absolute value inequality that has 3 and -5 as two of its solutions.

37. Community Service The chart below shows the number of cans of food collected by a club during the first four weeks of a food drive.

Food Drive

Week	Number of Cans
1	702
2	470
3	492
4	547

The goal is to collect at least 3000 cans in 5 weeks. Write and solve an inequality to find how many cans should be collected during Week 5 to meet or exceed the goal.

38. Safe Load A freight elevator can safely hold no more than 2000 pounds. An elevator operator must take 55-pound boxes to a storage area. If he weighs 165 pounds, how many boxes can he safely move at one time?

39. Manufacturing A manufacturer is cutting plastic sheets to make rectangles that are 11.125 in. by 7.625 in. Each rectangle's length and width must be within 0.005 in. of the desired size. Write and solve inequalities to find the acceptable range for the length ℓ and for the width w.