

## 5

## CHAPTER TEST

Translate the verbal phrase into an inequality. Then graph the inequality.

- All real numbers that are less than 5
- All real numbers that are greater than or equal to  $-1$
- All real numbers that are greater than  $-2$  and less than or equal to 7
- All real numbers that are greater than 8 or less than  $-4$

Solve the inequality, if possible. Graph your solution.

- |                              |                                   |   |
|------------------------------|-----------------------------------|---|
| 5. $x - 9 \geq -5$           | 6. $-2 > 5 + y$                   | 7. $-0.8 \leq z + 7.7$                  |
| 8. $5m \geq 35$              | 9. $\frac{n}{6} < -1$             | 10. $\frac{r}{-3} \leq 4$               |
| 11. $-4s < 6s + 1$           | 12. $4t - 7 \leq 13$              | 13. $-8 > 5 - v$                        |
| 14. $3(5w + 4) < 12w - 11$   | 15. $4p - 3 > 2(2p + 1)$          | 16. $9q - 12 \geq 3(3q - 4)$            |
| 17. $-2 \leq 4 - 3a \leq 13$ | 18. $-7 < 2c - 1 < 10\frac{1}{2}$ | 19. $-5 \leq 2 - h$ or $6h + 5 \geq 71$ |
| 20. $ 2d + 8  > 3$           | 21. $2 3f - 7  + 5 < 11$          | 22. $ j - 7  - 1 \leq 3\frac{5}{6}$     |

Solve the equation, if possible.

- |   |                         |                         |
|---|-------------------------|-------------------------|
| 23. $-\frac{3}{4} x - 3  = \frac{1}{4}$ | 24. $ 3y + 1  - 6 = -2$ | 25. $4 2z + 5  + 9 = 5$ |
|---|-------------------------|-------------------------|

Check whether the ordered pair is a solution of the inequality.

- |                              |                                   |                             |
|------------------------------|-----------------------------------|-----------------------------|
| 26. $2x - y < 4$ ; $(2, -1)$ | 27. $y + 3x \geq -5$ ; $(-3, -4)$ | 28. $y \leq -3$ ; $(4, -7)$ |
|------------------------------|-----------------------------------|-----------------------------|

Graph the inequality.

- |                 |                     |                 |
|-----------------|---------------------|-----------------|
| 29. $y < x + 4$ | 30. $y \geq 2x - 5$ | 31. $y \geq -6$ |
|-----------------|---------------------|-----------------|

32. **BUSINESS** Your friend is starting a small business baking and decorating cakes and wants to make a profit of at least \$250 for the first month. The expenses for the first month are \$155. What are the possible revenues that your friend can earn in order to meet the profit goal?
33. **BICYCLES** A manufacturer of bicycle parts requires that a bicycle chain have a width of 0.3 inch with an absolute error of at most 0.0003 inch. Find the possible widths of bicycle chains that the manufacturer will accept.
34. **HORSES** You are planning to ride a horse to a campsite. The sum of your weight  $x$  (in pounds) and the combined weight  $y$  (in pounds) of your camping supplies can be at most 20% of the weight of the horse.
- Suppose that the horse weighs 1000 pounds. Write and graph an inequality that describes the possible combinations of your weight and the combined weight of the camping supplies.
  - Identify and interpret one of the solutions of the inequality in part (a).