

4.4 Practice Set

1. How are absolute value inequalities related to compound inequalities? Give an example.
2. How do you know whether an absolute value inequality is an “and” or an “or” situation?
3. Write an equivalent compound inequality for $-5 < x \leq 7$.

Solve each of the following inequalities, graph your solution on a number line and write your solution in interval notation.

4. $|x| \leq 6$
5. $|x - 5| < 9$
6. $|8x - 1| < -3$
7. $|3x - 2| - 4 \leq -2$
8. $|x - 4| > -3$
9. $|2x - 7| + 1 > 10$
10. $|4x + 5| > 0$
11. $|5x + 3| < 8$
12. $|-2x + 8| \leq 12$
13. $|x - 4| + 3 \geq 7$
14. $-|3 - x| > -9$
15. $\left|\frac{4}{5}x - 2\right| \geq 4$
16. $|6x + 3| < -10$

$$17. \quad -12 + |5x - 4| \leq -6$$

$$18. \quad \left| 7x - \frac{2}{3} \right| - 8 \geq -4$$

$$19. \quad |3x - 12| \geq -2$$

$$20. \quad |-4x + 2| - 3 < 5$$

$$21. \quad \left| \frac{7x-8}{5} \right| \geq 4$$

$$22. \quad -3|7 + x| \geq -15$$

$$23. \quad 4 - |3x - 1| < 12$$

$$24. \quad 7 + 3|x + 2| < 10$$

$$25. \quad 5|7x - 2| - 8 \geq 17$$

Distributed Practice Problems

Solve each of the following equations for the indicated variable.

$$26. \quad m = yz - 5y^5 \text{ for } z$$

$$27. \quad 7x^2 - 4x = 5$$

$$28. \quad -2|3x - 4| + 1 = 7$$

$$29. \quad 9^{2x-1} = 4^{3x}$$

$$30. \quad \log_5(4y - 3) - \log_5(y + 1) = 2$$