NAME _____ DATE _____

Module 6 Solving Absolute Value Equations and Inequalities

Lesson 1 Solving Basic Absolute Value Equations

independent practice

Solve the following absolute value equations.

1. $|x| = 7$ _____
2. $|x| = -4$ _____
3. $|x + 1| = 2$ _____
4. $|x + 3| = 6$ _____
5. $|x + 3| = 12$ _____
6. $|x + 6| = 7$ _____
7. $|x + 2| = 7$ _____
8. $|x + 9| = 1$ _____
9. $|x + 1| = 3$ _____
10. $|x + 1| = 7$ _____
11. $|x + 7| = 4$ _____
12. $|x + 5| = 5$ _____
13. $|x - 8| = 4$ _____
14. $|x - 3| = 1$ _____
15. $\left|\frac{x}{2}\right| = 3$ _____
16. $\left|\frac{x}{4}\right| = 5$ _____
17. $\left|\frac{x}{3}\right| = 0$ _____
18. $\left|\frac{x}{3}\right| = 4$ _____
19. $\left|\frac{x}{2}\right| = 2$ _____
20. $\left|\frac{x}{2}\right| = 6$ _____

Journal

1. When solving for the variable in absolute value equations, why is there often more than one solution?
2. How do absolute value problems and the symbol $\pm$ translate into disjunction statements? Give examples.
3. George says that the solution to the inequality $|x - 8| = 4$ is $x = 12$. Sally says that the solution is $x = 12$ or -4. Who is correct and why?
4. How many numbers are in the solution set of the equation $|x + 3| = 6$?
5. Can you think of situations where there would be only one number in the solution set to solve an absolute value equation?
6. Explain how to solve $\left|\frac{x}{4}\right| = 5$.

Cumulative Review

Solve by inspection.

1. $6J = 12$ _____

2. $4y = -16$ _____

3. $M \cdot 7 = -21$ _____

4. $T \cdot (-8) = -24$ _____

5. $Q \cdot -27 = 0$ _____

6. $57R = 0$ _____

7. $42 \div F = 7$ _____

8. $45 \div D = -9$ _____

9. $\frac{K}{5} = 3$ _____

10. $\frac{T}{-2} = 50$ _____