Vocabulary and Core Concept Check

1. **VOCABULARY** What is an extraneous solution?
2. **WRITING** Without calculating, how do you know that the equation $|4x - 7| = -1$ has no solution?

Monitoring Progress and Modeling with Mathematics

In Exercises 3–10, simplify the expression.

3. $|-9|$
4. $-|15|$
5. $|14| - |-14|$
6. $|-3| + |3|$
7. $-|-5 \cdot (-7)|$
8. $|-0.8 \cdot 10|$
9. $\left|\frac{27}{-3}\right|$
10. $\left|-\frac{-12}{4}\right|$

In Exercises 11–24, solve the equation. Graph the solution(s), if possible. *(See Examples 1 and 2.)*

11. $|w| = 6$
12. $|r| = -2$
13. $|y| = -18$
14. $|x| = 13$
15. $|m + 3| = 7$
16. $|q - 8| = 14$
17. $|-3d| = 15$
18. $\left|\frac{t}{2}\right| = 6$
19. $|4b - 5| = 19$
20. $|x - 1| + 5 = 2$
21. $-4|8 - 5n| = 13$
22. $-3\left|1 - \frac{2}{3}v\right| = -9$
23. $3 = -2\left|\frac{1}{4}s - 5\right| + 3$
24. $9|4p + 2| + 8 = 35$

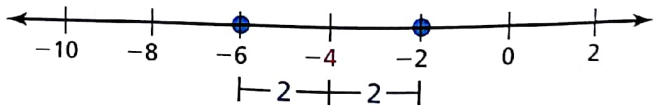
25. **WRITING EQUATIONS** The minimum distance from Earth to the Sun is 91.4 million miles. The maximum distance is 94.5 million miles. *(See Example 3.)*
    a. Represent these two distances on a number line.
    b. Write an absolute value equation that represents the minimum and maximum distances.

26. **WRITING EQUATIONS** The shoulder heights of the shortest and tallest miniature poodles are shown.

    a. Represent these two heights on a number line.
    b. Write an absolute value equation that represents these heights.

USING STRUCTURE In Exercises 27–30, match the absolute value equation with its graph without solving the equation.

27. $|x + 2| = 4$
28. $|x - 4| = 2$
29. $|x - 2| = 4$
30. $|x + 4| = 2$

A.


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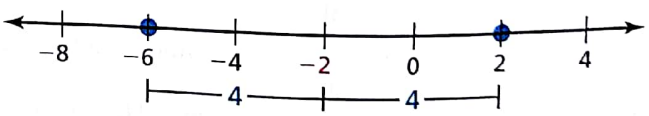

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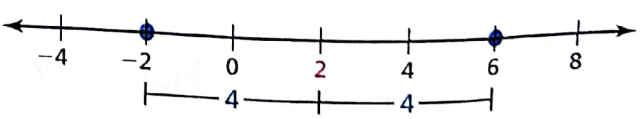

D.