89. ★ **EXTENDED RESPONSE** You have filled two round balloons with water. One balloon contains twice as much water as the other balloon.

    a. Solve the formula for the volume of a sphere, $V = \frac{4}{3}\pi r^3$, for r.

    b. Substitute the expression for r from part (a) into the formula for the surface area of a sphere, $S = 4\pi r^2$. Simplify to show that $S = (4\pi)^{1/3}(3V)^{2/3}$.

    c. *Compare* the surface areas of the two water balloons using the formula from part (b).

90. **CHALLENGE** Substitute different combinations of odd and even positive integers for m and n in the expression $\sqrt[n]{x^m}$. If x is not always positive, when is absolute value needed in simplifying the expression?
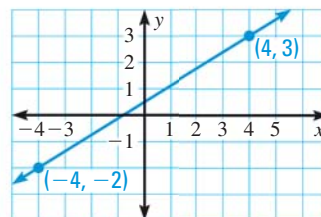
MIXED REVIEW FOR TAKS

91. ★ **TAKS PRACTICE** Which equation best represents a line parallel to the line shown? *TAKS Obj. 7*

   Ⓐ $-5x + 8y = 14$ Ⓑ $-2x + 4y = -3$

   Ⓒ $-x - 4y = 14$ Ⓓ $8x + 5y = 20$

92. ★ **TAKS PRACTICE** What is the solution of the inequality $-5 \le -6x + 3 \le 15$? *TAKS Obj. 4*

   Ⓕ $-3 \le x \le \frac{1}{3}$ Ⓖ $-2 \le x \le \frac{4}{3}$ Ⓗ $\frac{1}{3} \le x \le -3$ Ⓙ $\frac{4}{3} \le x \le -2$

QUIZ *for Lessons 6.1–6.2*

Evaluate the expression without using a calculator. *(p. 414)*

  1. $36^{3/2}$ **2.** $64^{-2/3}$ **3.** $-\left(625^{3/4}\right)$ **4.** $(-32)^{2/5}$

Solve the equation. Round your answer to two decimal places when appropriate. *(p. 414)*

  5. $x^4 = 20$ **6.** $x^5 = -10$ **7.** $x^6 + 5 = 26$ **8.** $(x + 3)^3 = -16$

Simplify the expression. Assume all variables are positive. *(p. 420)*

  9. $\sqrt[4]{32} \cdot \sqrt[4]{8}$ **10.** $\left(\sqrt{10} \cdot \sqrt[3]{10}\right)^8$ **11.** $\left(x^6 y^4\right)^{1/8} + 2\left(x^{1/3} y^{1/4}\right)^2$

  12. $\dfrac{3\sqrt{7^3} + 4\sqrt{7^3}}{\sqrt{7^5}}$ **13.** $\dfrac{2\sqrt{x} \cdot \sqrt{x^3}}{\sqrt{64x^{15}}}$ **14.** $y^2\sqrt[5]{64x^6} - 6\sqrt[5]{2x^6 y^{10}}$

15. ⊘ **GEOMETRY** Find a radical expression for the perimeter of the red triangle inscribed in the square shown to the right. Simplify the expression. *(p. 420)*