26. ERROR ANALYSIS A student tried to explain how the graphs of $y = -2\sqrt[3]{x}$ and $y = -2\sqrt[3]{x+1} - 3$ are related. *Describe* and correct the error.

> The graph of $y = -2\sqrt[3]{x+1} - 3$ is the graph of $y = -2\sqrt[3]{x}$ translated right 1 unit and down 3 units. ✗

27. TAKS REASONING If the graph of $y = 3\sqrt[3]{x}$ is shifted left 2 units, what is the equation of the translated graph?

Ⓐ $y = 3\sqrt[3]{x-2}$ Ⓑ $y = 3\sqrt[3]{x} - 2$ Ⓒ $y = 3\sqrt[3]{x+2}$ Ⓓ $y = 3\sqrt[3]{x} + 2$

REASONING Find the domain and range of the function without graphing. *Explain* how you found your answers.

28. $y = \sqrt{x+5}$ **29.** $y = \sqrt{x-12}$ **30.** $y = \frac{1}{3}\sqrt{x} - 4$

31. $y = \frac{1}{2}\sqrt[3]{x+7}$ **32.** $g(x) = \sqrt[3]{x+7}$ **33.** $f(x) = \frac{1}{4}\sqrt{x-3} + 6$

34. CHALLENGE Graph $y = \sqrt[4]{x}$, $y = \sqrt[5]{x}$, $y = \sqrt[6]{x}$, and $y = \sqrt[7]{x}$ on a graphing calculator. Make generalizations about the graph of $y = \sqrt[n]{x}$ when n is even and when n is odd.

PROBLEM SOLVING

EXAMPLE 3 on p. 447 for Exs. 35–36

35. INDIRECT MEASUREMENT The distance d (in miles) that a pilot can see to the horizon can be modeled by $d = 1.22\sqrt{a}$ where a is the plane's altitude (in feet above sea level). Graph the model on a graphing calculator. Then determine at what altitude the pilot can see 8 miles.

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36. PENDULUMS Use the model $T = 1.11\sqrt{\ell}$ for the period of a pendulum from Example 3 on page 447.

a. Find the period of a pendulum with a length of 2 feet.

b. Find the length of a pendulum with a period of 2 seconds.

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37. TAKS REASONING The speed v (in meters per second) of sound waves in air depends on the temperature K (in kelvins) and can be modeled by:

$$v = 331.5\sqrt{\frac{K}{273.15}}, \quad K \geq 0$$

a. Kelvin temperature K is related to Celsius temperature C by the formula $K = 273.15 + C$. Write an equation that gives the speed v of sound waves in air as a function of the temperature C in degrees Celsius.

b. What are a reasonable domain and range for the function from part (a)?

= WORKED-OUT SOLUTIONS on p. WS1 = TAKS PRACTICE AND REASONING = MULTIPLE REPRESENTATIONS