63. **TAKS REASONING** A platform shaped like a rectangular prism has dimensions $x - 2$ feet by $3 - 2x$ feet by $3x + 4$ feet. *Explain* why the volume of the platform cannot be $\frac{7}{3}$ cubic feet.

64. **TAKS REASONING** In 2000 B.C., the Babylonians solved polynomial equations using tables of values. One such table gave values of $y^3 + y^2$. To be able to use this table, the Babylonians sometimes had to manipulate the equation, as shown below.

$ax^3 + bx^2 = c$ **Original equation**

$\frac{a^3x^3}{b^3} + \frac{a^2x^2}{b^2} = \frac{a^2c}{b^3}$ **Multiply each side by $\frac{a^2}{b^3}$.**

$\left(\frac{ax}{b}\right)^3 + \left(\frac{ax}{b}\right)^2 = \frac{a^2c}{b^3}$ **Rewrite cubes and squares.**

They then found $\frac{a^2c}{b^3}$ in the $y^3 + y^2$ column of the table. Because the corresponding y-value was $y = \frac{ax}{b}$, they could conclude that $x = \frac{by}{a}$.

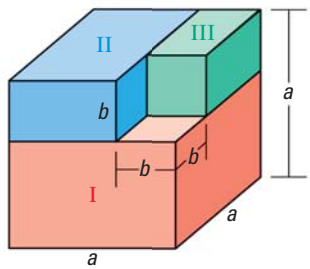
a. Calculate $y^3 + y^2$ for $y = 1, 2, 3, \ldots, 10$. Record the values in a table.

b. Use your table and the method described above to solve $x^3 + 2x^2 = 96$.

c. Use your table and the method described above to solve $3x^3 + 2x^2 = 512$.

d. How can you modify the method described above for equations of the form $ax^4 + bx^3 = c$?

65. **CHALLENGE** Use the diagram to complete parts (a)–(c).



a. *Explain* why $a^3 - b^3$ is equal to the sum of the volumes of solid I, solid II, and solid III.

b. Write an algebraic expression for the volume of each of the three solids. Leave your expressions in factored form.

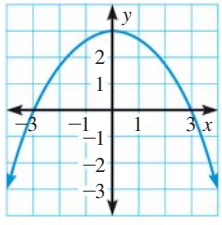
c. Use the results from parts (a) and (b) to derive the factoring pattern for $a^3 - b^3$ given on page 354.

MIXED REVIEW FOR TAKS

TAKS PRACTICE at classzone.com

REVIEW Lesson 2.1; TAKS Workbook

66. **TAKS PRACTICE** Which inequality best describes the range of the function represented by the graph shown? *TAKS Obj. 2*

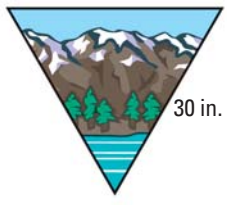


Ⓐ $y \le 3$ Ⓑ $y \ge 3$

Ⓒ $-3 \le y \le 3$ Ⓓ $-4 \le y \le 4$

REVIEW TAKS Preparation p. 408; TAKS Workbook

67. **TAKS PRACTICE** A poster is shaped like an equilateral triangle with a side length of 30 inches. What is the approximate area of the poster? *TAKS Obj. 8*



Ⓕ 195 in.^{2} Ⓖ 318 in.^{2}

Ⓗ 390 in.^{2} Ⓙ 780 in.^{2}