

40. **SCHOOL ENROLLMENT** During the period 1985–2012, the projected enrollment B (in thousands of students) in public schools and the projected enrollment R (in thousands of students) in private schools can be modeled by

$$B = -18.53t^2 + 975.8t + 48,140 \quad \text{and} \quad R = 80.8t + 8049$$

where t is the number of years since 1985. Write an equation that models the total school enrollment (in thousands of students) as a function of the number of years since 1985. What percent of all students is expected to be enrolled in public schools in 2012?

41. **TAKS REASONING** The award for the best pitchers in baseball is named after the pitcher Cy Young. During the period 1890–1911, the total number of Cy Young's wins W and losses L can be modeled by

$$W = -0.44t^2 + 34t + 4.7 \quad \text{and} \quad L = 15t + 15$$

where t is the number of years since 1890.

- A game credited to a pitcher as a win or a loss is called a decision. Write an equation that models the number of decisions for Cy Young as a function of the number of years since 1890.
- Cy Young's career in Major League Baseball lasted from 1890 to 1911. Approximately how many total decisions did Cy Young have during his career?
- About what percent of the decisions in Cy Young's career were wins? *Explain* how you found your answer.



Cy Young Award

42. **CHALLENGE** In 1970 the United States produced 63.5 quadrillion BTU (British Thermal Units) of energy and consumed 67.86 quadrillion BTU. From 1970 through 2001, the total U.S. energy production increased by about 0.2813 quadrillion BTU per year, and the total U.S. energy consumption increased by about 0.912 quadrillion BTU per year.
- Write two equations that model the total U.S. energy production and consumption (in quadrillion BTU) as functions of the number of years since 1970.
 - How much more energy was consumed than produced in the U.S. in 1970 and in 2001? What was the change in the amount of energy consumed from 1970 to 2001?



MIXED REVIEW FOR TAKS

TAKS PRACTICE at classzone.com

REVIEW

Lesson 7.1;
TAKS Workbook

43. **TAKS PRACTICE** The length of a rectangle is equal to quadruple the width. Which system of equations can be used to find the dimensions of the rectangle if the perimeter is 96 inches? **TAKS Obj. 4**

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|------------------------------------|-----------------------------------|
| (A) $l = w + 4$ $2(l + w) = 96$ | (B) $l = 4w$ $2l + 8w = 96$ |
| (C) $l = 4w$ $2(l + w) = 96$ | (D) $l = w + 4$ $2l + 8w = 96$ |