45. CHALLENGE To decide whether a person qualifies for a loan to buy a house, a lender uses the ratio r of the person's expected monthly housing expenses to monthly income. Suppose the person has a monthly income of $4150 and expects to pay $1200 per month in housing expenses. The person also expects to receive a raise of x dollars this month.

  a. Write and graph an equation that gives r as a function of x.

  b. The person will qualify for a loan if the ratio is 0.28. What must the amount of the raise be in order for the person to qualify for a loan?


MIXED REVIEW FOR TAKS

46.   **TAKS PRACTICE** Which of the following can NOT be modeled using a linear equation? *TAKS Obj. 3*

  (A) Julia deposits $5000 in a savings account that earns 5% interest compounded annually. Predict the amount of money in the account in x years.

  (B) A store sells 5 oranges for $2. How many oranges can you buy for x dollars?

  (C) You have $12 more than your friend, who has x dollars. How much do you have?

  (D) Leonard's current salary is $40,000, and every year he gets a raise of $1000. Predict his salary in x years.

47.   **TAKS PRACTICE** Find the surface area of the cylinder shown. *TAKS Obj. 8*

  (F) 205π cm^2

  (G) 230π cm^2

  (H) 450π cm^2

  (J) 900π cm^2

5 cm

18 cm
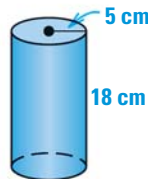
QUIZ *for Lessons 12.1–12.2*

Tell whether the equation represents *direct variation*, *inverse variation*, or *neither*. *(p. 765)*

1. $\frac{1}{5}xy = 1$
    2. $y = -9x$
    3. $5x + y = 3$

Given that y varies inversely with x, use the specified values to write an inverse variation equation that relates x and y. Then find the value of y when $x = 3$. *(p. 765)*

4. $x = 6, y = 4$
    5. $x = -3, y = 7$
    6. $x = \frac{5}{2}, y = 2$

Graph the function. Identify its domain and range. *(p. 775)*

7. $y = \frac{4}{x}$
    8. $y = \frac{-2}{x - 6}$
    9. $y = \frac{3}{x + 2} - 5$