41. ◆ **MULTIPLE REPRESENTATIONS** Your movie rental membership lets you rent any number of movies for $22 per month. You rent at least 2 movies per month.

   a. Writing an Equation Write an equation that gives the average cost C (in dollars per rental) as a function of the number r of additional rentals beyond 2 rentals.

   b. Drawing a Graph Graph the equation from part (a). Then use the graph to approximate the number of additional rentals needed per month so that the average cost is $1.50 per rental.

42. ✦ **TAKS REASONING** The Mount Washington Auto Road in New Hampshire is a 7.6 mile uphill road that leads to the mountain's 6288 foot peak. The year's fastest time t (in seconds) for driving up the road during the period 1904–1998 can be modeled by

$$t = \frac{56{,}000}{x + 40}$$

where x is the number of years since 1904. Graph the function. *Describe* how the fastest times changed during the period. Was the *change* in the fastest time from year to year *increasing* or *decreasing*? *Explain*.

43. DIVING DEPTHS The percent p (in decimal form) of time that an elephant seal spends gliding through the water while diving can be modeled by

$$p = \frac{-28.2}{d} + 0.859$$

where d is the depth (in meters) of the dive. Graph the equation and identify its domain and range. *Describe* how the percent of time gliding changes as the depth increases.

44. ✦ **TAKS REASONING** Oxygen cost is a measure of a person's walking efficiency. The models below give the oxygen cost c (in millimeters per kilogram of body mass per meter) as a function of the walking speed v (in meters per minute) for various age groups.

Ages 6–12   **Ages 13–19**   **Ages 20–59**

$c = \dfrac{2.61}{v} + 0.188$ $c = \dfrac{1.68}{v} + 0.147$ $c = \dfrac{2.60}{v} + 0.129$

   a. Graph Normal walking speeds range from 40 meters per minute to 100 meters per minute. Graph the models in the same coordinate plane. Use the domain $40 \le v \le 100$.

   b. Interpret The greater the oxygen cost, the less efficient the person is while walking. Use the graphs to tell whether a person is *more efficient* or *less efficient* while walking as the person's speed increases.

   c. Compare Which age group has the least efficient walkers at the speeds given in part (a)? *Justify* your choice.