

11. Heart rates and life spans of most mammals are inversely related. A cat lives for about 15.2 years on average and has a heart rate of 126 beats per minute.

- a. What is the constant of variation?
- b. A hamster has a heart rate of about 634 beats per minute. About how long will a hamster live?
- c. An elephant lives for about 70 years. About how many times per minute does an elephant's heart beat?

12. Two gears are used to operate a machine. Gear A has 60 teeth and Gear B has 45 teeth. The speed at which you turn Gear A is 5400 rpm. The number of teeth and speed in rpm are inversely related.

- a. What is the constant of variation?
- b. At what speed will Gear B turn?

13. The grade you earn in math varies inversely with the number of minutes per night you watch television. If you watch 90 minutes per night, you get a 60 in math.

- a. What is the constant of variation?
- b. How much television can you watch if you want to make a 70?
- c. You cut back on your television to only 75 minutes a night, what grade will you make in math?
- d. What is the maximum amount of television you can watch and still make a 100?

14. The amount of water that has leaked from a faucet varies directly with time. In 2 hours, 10 gallons of water leak.

- a. Describe what happens to the amount of water as time increases.
- b. What is the constant of variation?
- c. How much water leaks in 100 hours?
- d. How long does it take for 100 gallons to leak?