Homework Help

For Exercises	See Examples
9–13, 18, 21, 22	1
14, 15	2
16, 17, 25–28	3
19, 20	4

Extra Practice See page 843.

WEIGHT TRAINING For Exercises 11 and 12, use the following information. In 1997, there were 43.2 million people who used free weights.

11. Assuming the use of free weights increases 6% annually, write an equation for the number of people using free weights t years from 1997.

12. Predict the number of people using free weights in 2007.

13. **POPULATION** The population of Mexico has been increasing at an annual rate of 1.7%. If the population of Mexico was 100,350,000 in the year 2000, predict its population in 2012.

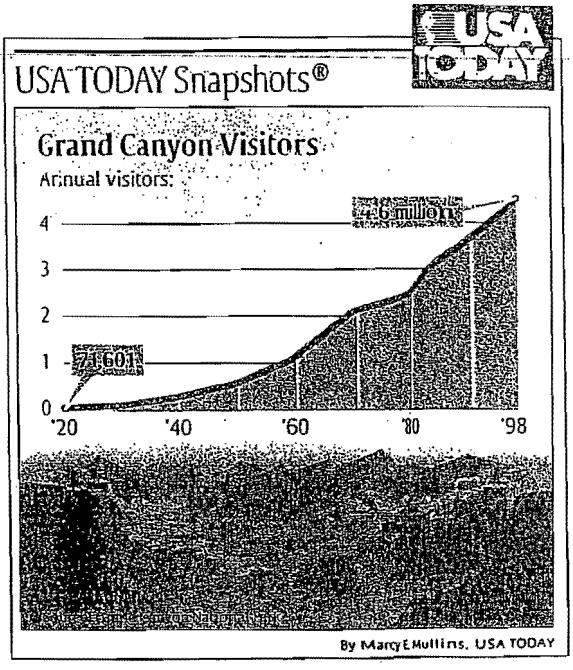
14. **INVESTMENTS** Determine the amount of an investment if \$500 is invested at an interest rate of 5.75% compounded monthly for 25 years.

15. **INVESTMENTS** Determine the amount of an investment if \$250 is invested at an interest rate of 10.3% compounded quarterly for 40 years.

16. **POPULATION** The country of Latvia has been experiencing a 1.1% annual decrease in population. In 2000, its population was 2,405,000. If the trend continues, predict Latvia's population in 2015.

17. **MUSIC** In 1994, the sales of music cassettes reached its peak at \$2,976,400,000. Since then, cassette sales have been declining. If the annual percent of decrease in sales is 18.6%, predict the sales of cassettes in the year 2009.

18. **GRAND CANYON** The increase in the number of visitors to the Grand Canyon National Park is similar to an exponential function. If the average visitation has increased 5.63% annually since 1920, use the graph to predict the number of visitors to the park in 2020.



19. **BUSINESS** A piece of office equipment valued at \$25,000 depreciates at a steady rate of 10% per year. What is the value of the equipment in 8 years?

20. **TRANSPORTATION** A new car costs \$23,000. It is expected to depreciate 12% each year. Find the value of the car in 5 years.

POPULATION For Exercises 21 and 22, use the following information. The percent of the population that is 65 years old or older continues to rise. The percent of the U.S. population P that is at least 65 years old can be approximated by $P = 3.86(1.013)^t$, where t represents the number of years since 1900.

21. What percent of the population will be 65 years of age or older in the year 2010?

22. Predict the year in which people ages 65 or older will represent 20% of the population if this trend continues. (*Hint*: Make a table.)

CRITICAL THINKING Each equation represents an exponential rate of change if t is time in years. Determine whether each equation represents growth or decay. Give the annual rate of change as a percent.

23. $y = 500(1.026^t)$

24. $y = 500(0.761^t)$