**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

**Solve the problem.**

1) A computer is purchased for $4100. Its value each year is about 76% of the value the preceding year. Its value, in dollars, after t years is given by the exponential function $V(t) = 4100(0.76)^t$. Find the value of the computer after 2 years.

2) A city is growing at the rate of 0.7% annually. If there were 4,651,000 residents in the city in 1994, find how many (to the nearest ten–thousand) were living in that city in 2000. Use $y = 4{,}651{,}000(2.7)^{0.007t}$

3) The amount of particulate matter left in solution during a filtering process decreases by the equation $P = 300(0.5)^{0.6n}$, where n is the number of filtering steps. Find the amounts left for n = 0 and n = 5. (Round to the nearest whole number.)

4) The number of dislocated electric impulses per cubic inch in a transformer increases when lightning strikes by $D = 7900(5)^x$, where x is the time in milliseconds of the lightning strike. Find the number of dislocated impulses at x = 0 and x = 2.

5) The number of bacteria growing in an incubation culture increases with time according to $B = 9900(5)^x$, where x is time in days. Find the number of bacteria when x = 0 and x = 3.

6) The half–life of a certain radioactive substance is 22 years. Suppose that at time t = 0, there are 20 g of the substance. Then after t years, the number of grams of the substance remaining will be $N(t) = 20(1/2)^{t/22}$. How many grams of the substance will remain after 121 years?

7) The number of bacteria growing in an incubation culture increases with time according to $B(x) = 9500(2)^x$, where x is time in days. Find the number of bacteria when x = 0.

8) The number of bacteria growing in an incubation culture increases with time according to $B(x) = 7900(2)^x$, where x is time in days. After how many days will the number of bacteria in the culture be 252,800?(Hint: Let B(x) = 252,800.)

9) What is the compound amount after five years of $100 deposited at 10% interest compounded annually?

10) In order to have $5000 in two years, how much would a person have to invest if the money will earn 24% interest compounded quarterly?

11) What is the present value of $3000 payable in three years at 12% interest compounded annually?

**Express percents as decimals. Round dollar amounts to the nearest cent.**

12) What is the compound amount after three years of $5000 deposited at 8% interest compounded quarterly?

13) What is the compound amount after ten years of $5000 deposited at 8% interest compounded quarterly?

14) Calculate the compound amount after thirty years if $10,000 is deposited at 8% compounded annually.

15) What is the compound amount after three years of $5000 deposited at 6.5% interest compounded weekly?

16) Determine the present value of an $8000 payment to be received on January 1, 2008, if it is now July 1, 1997, and the money is invested at 4.8% interest compounded quarterly.

17) How much money would have to be deposited now at 8% compounded quarterly to amount to $5000 in 10 years?

18) What is the present value of \$10,000 in $1\frac{1}{2}$ years if the interest rate is 8% compounded semiannually?

19) In order to have \$10,000 in five years, how much would a person have to invest if the money will earn 12% interest compounded semiannually?

20) Calculate the compound amount after four years if \$3000 is deposited at 6% interest compounded monthly.

21) Is it more profitable to receive \$9000 now or \$23,000 in 12 years? Assume that money can earn 8% interest compounded quarterly.

22) Is it more profitable to receive \$5000 now or \$8400 in 13 years? Assume that money can earn 4% interest compounded quarterly.

23) Is it more profitable to receive \$2000 now or \$3400 in 9 years? Assume that money can earn 6% interest compounded semiannually.

24) Is it more profitable to receive \$20,000 now or \$50,000 in 10 years? Assume that money can earn 10% interest compounded semiannually.

25) Is it more profitable to receive \$1000 at the end of each quarter for 13 years or to receive a lump sum of \$325,000 at the end of 13 years? Assume money can earn 24% interest compounded quarterly.

26) Is it more profitable to receive \$1000 at the end of each month for 10 years or to receive a lump sum of \$163,000 at the end of 10 years? Assume money can earn 6% interest compounded monthly.

27) Is it more profitable to receive \$2000 at the end of each month for 5 years or to receive a lump sum of \$180,000 at the end of 5 years? Assume money can earn 18% interest compounded monthly.

Answer Key
Testname: SEE WORD PROBLEMS WS #1

1) $2368.16
2) 4,850,000
3) 300, 38
4) 7900; 197,500
5) 9900; 1,237,500
6) 0.44 g
7) 9500
8) 5 days
9) $161
10) $3137.06
11) $2135.34
12) $6341.21
13) $11,040.20
14) $100,626.57
15) $6075.82
16) $4847.40
17) $2264.45
18) $8889.96
19) $5583.95
20) $3811.47
21) $9000 now
22) $8400 in 13 years
23) $2000 now
24) $20,000 now
25) $1000 at the end of each quarter for 13 years
26) $1000 at the end of each month for 10 years
27) $2000 at the end of each month for 5 years