1. When it first opened, 2200 students attended Polaris High School. The enrollment has been declining 2% annually.

   a. Write an equation for the enrollment of Polaris High School t years after the school opened.

   b. If this trend continues, how many students will be enrolled after 15 years?

2. The Work-Out Gym sold 550 memberships in 2001. Since then the number of memberships sold has increased 3% annually.

   a. Write an equation for the number of memberships sold at Work-Out Gym t years after 2001.

   b. If this trend continues, predict how many memberships the gym will sell in 2020.

3. Paige invested $1200 at an interest rate of 5.75% compound quarterly. Determine the value of her investment in 7 years.

4. Ms. Acosta received a job as a teacher with a starting salary of $34,000. According to her contract, she will receive a 1.5% increase in her salary every year. How much will Ms. Acosta earn in 7 years?

5. Paul invested $400 into an account with a 5.5% interest rate compounded monthly. How much will Paul's investment be worth in 8 years?

6. The number of people who own computers has increased 23.2% annually since 1990. If half a million people owned a computer in 1990, predict how many people will own a computer in 2015.

7. Theo invested $6600 at an interest rate of 4.5% compounded monthly. Determine the value of his investment in 4 years.

8. Jin's investment of $4500 has been losing its value at a rate of 2.5% each year. What will his investment be worth in 5 years?

9. Leonardo purchases a car for $18,995. The car depreciates at a rate of 18% annually. After 6 years, Manuel offers to buy the car for $4500. Should Leonardo sell the car? Explain.

10. In the years from 2010 to 2015, the population of the District of Columbia is expected to decrease about 0.9% annually. In 2010, the population was about 530,000. What is the population of the District of Columbia expected to be in 2015?

11. You deposit $1600 in a bank account. Find the balance after 3 years for each of the following situations.

   a. The account pays 2.5% annual interest compounded monthly.

   b. The account pays 1.75% annual interest compounded quarterly.

   c. The account pays 4% annual interest compounded semi-annually.

12. Which equation represents the fastest exponential growth?

   A. $1.25(.97)^x$ **B.** $0.97(1.25)^x$ **C.** $1.24(.98)^x$ **D.** $0.98(1.24)^x$

13. Which equation represents the fastest exponential growth?

   A. $1.25(1+.56)^x$ **B.** $0.97(1+.566)^x$ **C.** $1.24(1+.02)^x$ **D.** $0.98(1+.24)^x$

14. If you deposit $2,500 in an account that pays 1.4% interest compounded quarterly which expression will calculate the value in the savings account in 7 years?

   A. $2500(1+.014)^7$ **B.** $2500\left(1+\dfrac{.014}{4}\right)^{28}$ **C.** $2500\left(1+\dfrac{.014}{4}\right)^{7}$ **D.** $2500(1+.014)^{28}$

15. Which equation represents the fastest exponential decay?

   A. $1.25(1-.037)^x$ **B.** $0.97(1-.2)^x$ **C.** $1.24(1-.02)^x$ **D.** $0.98(1-.24)^x$

16. The value of a new motorcycle purchased for $11,000 decreases 4% per year. Which exponential decay model will calculate the value of the car in any number of years?

A. $11000(1.04)^t$ **B.** $11000(.6)^t$ **C.** $11000(1.4)^t$ **D.** $11000(0.96)^t$

Match the following equivalent percentages:

17. $1 - 3\%$	**A.** $1 - 22\%$
18. 0.78	**B.** $1 - 0.85\%$
19. 43.5%	**C.** 0.97
20. 0.9915	**D.** 1.0345
21. $1 - 0.75\%$	**E.** 99.25%
22. $1 + 0.26$	**F.** $1\text{-}56.5\%$
23. 1.78	**G.** 126%
24. $1 + 3.45\%$	**H.** $1 + 0.78$