9.2 – 9.3 Worksheet   **Name**_____**Date**_____**Period**__

1) If a superball is bounced from a height of 20 feet, the function $f(x) = 20(0.9)^x$ gives the height of the ball in feet of each bounce, where x is the bounce number. What will be the height of the 6th bounce? Round your answer to the nearest tenth of a foot.

2) If a basketball is bounced from a height of 15 feet, the function $f(x) = 15(0.75)^x$ gives the height of the ball in feet of each bounce, where x is the bounce number. What will be the height of the 5th bounce? Round your answer to the nearest tenth of a foot.

3) The population of a town is 4200 and increasing at a rate of 3% per year. Write an exponential growth function to model the situation. Then find the population after 7 years.

4) Annual sales for a clothing store are $270,000 and are increasing at a rate of 7% per year. Write an exponential growth function to model the situation. Then find the sales after 3 years.

5) The population of a school is 2200 and is increasing at a rate of 2%. Write an exponential growth function to model the situation. Then find the population after 6 years.

6) The value of an antique vase is $200 and is increasing at a rate of 8%. Write an exponential growth function to model the situation. Then find the value after 8 years.

7) An internet chat room has 1200 participants and is decreasing at a rate of 2% per year. Write an exponential decay function to model the situation. How many participants after 5 years?

8) The population of a school is 800 and is decreasing at a rate of 2% per year. Write an exponential decay function to model the situation. Then find the population after 4 years.

9) The bird population in a forest is about 2300 and decreasing at a rate of 4% per year. Write an exponential decay function to model the situation. Then find the population after 10 years.

10) Write a compound interest function to model $20,000 invested at a rate of 3% compounded annually. Then find the balance after 8 years.

11) Write a compound interest function to model $35,000 invested at a rate of 6% compounded monthly. Then find the balance after 10 years.

12) Write a compound interest function to model $35,000 invested at a rate of 8% compounded quarterly. Then find the balance after 5 years.