



Chapter 11

Practice Worksheet

Name _____

Period _____

Directions: Solve the following problems on a separate sheet of paper. Show all your work. Circle your answer.

1. The population of Orangedale is increasing at the rate of 4% per year. The population in 1990 was 50,000 people. Find the population in 1991, 1992, and 1995, respectively.
2. If \$8000 are invested in an account that pays 5.25% interest compounded annually. (a) How much will be in the account after 4 years? (b) How long will it take until the account has \$25000?
3. An investment of \$500 increased to \$1000 after 12 years. At what rate was the money invested if the interest was compounded monthly?
4. A research biologist began to grow a culture in which the number of bacteria doubled every day. Three days later, she began a second culture in a richer medium so that the number of bacteria increased fourfold everyday. If each culture was begun with the same number of bacteria present, how many days after starting the second culture will the number of bacteria in the two cultures be equal?
5. A group of 5 persons met to form an organization to encourage recycling in their town. At each meeting, each person was asked to bring a friend, thus doubling the size of the group. If the plan to increase attendance is successful, at which meeting will there be 320 persons in the group?
6. What is the value after 3 years of a \$5000 investment that pays interest at 9% per year if the interest is compounded continuously?
7. The half-life of Uranium-227 is 1.3 minutes. Find, to the nearest hundredth of a gram, the amount remaining of a 100 gram sample after 3 minutes?

8. The forest service, to balance the deer population in a national forest, is planning to reduce the present deer population of 5000 by 4% a year. If the plan is successful, how many deer will there be after 10 years?
9. A town with a population of 12382 is decreasing in population at the rate of 3% per year. If this decrease continues, what will be the population of the town in 8 years?
10. When Patty was in kindergarten, her mother gave her 10¢ to spend each week. When Patty was in first grade, her mother tripled the amount, giving her 30¢ each week. If this pattern continued and Patty's allowance was tripled each year, in what grade would her allowance be more than \$50 a week? What would her allowance be when she was a senior?
11. Research biologists estimated that when DDT was introduced into an animal's system and stored in its fatty tissue, it took 8 years for one-half of the amount to be eliminated. A rabbit ate some vegetables from a garden shortly after it had been sprayed with DDT. If the vegetables eaten contained 4 grams of DDT, how much of the DDT would still be present in the rabbit's body after 1 year? How long will it take for the amount of DDT in rabbit's body to reach 0.75 grams?
12. A couple wants to find out how much it can borrow to buy a house. The current interest rate is 8.25% annually and they can afford to pay \$650 a month in payments. How much can they borrow for a 25 year mortgage? a 30 year mortgage?
13. You need to save money to pay for your sons college education. You plan on putting \$100 in a savings account every month from the day he is born. You can get an interest rate of 6% annually. How much will you have saved by his eighteenth birthday?