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| Lesson 5.3 | Homework |

Complete the following problems on a separate sheet of paper. Show all work that is necessary.

1. How much money will you have in 8 years if you invest $4000 at 3½% compounded quarterly?
2. What interest rate do you need for a $5000 investment to double in 10 years?
3. How much money do you need to invest at 2 ¾ % in order to have $12,000 after 7 years?
4. How much money will you have in 6 months if you invest $1000 at 3% compounded monthly?
5. How much interest will you earn in 8 years if you invest $7500 at 4¼% compounded semi-annually?
6. In 1910, the population of Math Valley was 15,000. If the population is increasing at an annual rate of 2.4%, what was the population in 1965?
7. A herd of elk increased from 75 in 1998 to 310 in 2005. Find the annual percent of increase for this herd.
8. A certain species of bird is in danger of becoming extinct. There were 1500 birds in 2000 and they are decreasing at an annual rate of 6.5%.
9. If this trend continues, how many birds will be left by 2010?
10. How many birds would there have been in 1990?
11. You are investing $1500 at 5.2% compounded continuously. How much money will you have in 12 years?
12. How much money do you need to invest at 2.8% compounded continuously in order to have $25,500 at the end of 8 years?
13. If you deposit $4500 at 5% annual interest compounded quarterly, how much money will be in the account after 10 years?
14. If you deposit $4000 into an account paying 9% annual interest compounded monthly, how long until there is $10000 in the account?
15. If you deposit $2500 into an account paying 11% annual interestcompounded quarterly, how long until

there is $4500 in the account?

1. How much money would you need to deposit today at 5% annual interest compounded monthly to have $20000 in the account after 9 years?
2. If you deposit $6000 into an account paying 6.5% annual interest  compounded quarterly, how long until there is $12600 in the account?
3. If you deposit $5000 into an account paying 8.25% annual interest compounded semiannually, how

long until there is $9350 in the account?

1. The half-life of Zn-71 is 2.4 minutes. If one had 100.0 g at the beginning, how many grams would be left after 7.2 minutes has elapsed?
2. Pd-100 has a half-life of 3.6 days. If one had 6.02 x 1023 atoms at the start, how many atoms would be present after 20.0 days?
3. Os-182 has a half-life of 21.5 hours. How many grams of a 10.0 gram sample would have decayed after exactly three half-lives?
4. After 24.0 days, 2.00 milligrams of an original 128.0 milligram sample remain. What is the half-life of the sample?