

**Exponential Equations Worksheet**

NAME \_\_\_\_\_ DATE \_\_\_\_\_

Solve each problem. Show all work.

1. How much money will you have in 8 years if you invest \$4000 at  $3\frac{1}{2}\%$  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  $2\frac{3}{4}\%$  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  $4\frac{1}{4}\%$  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%.

a) If this trend continues, how many birds will be left by 2010?

b) How many birds would there have been in 1990?

9. You are investing \$1500 at 5.2% compounded continuously. How much money will you have in 12 years?

10. 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?

11. If you deposit \$4500 at 5% annual interest compounded quarterly, how much money will be in the account after 10 years?

12. If you deposit \$4000 into an account paying 9% annual interest compounded monthly, how long until there is \$10000 in the account?

13. If you deposit \$2500 into an account paying 11% annual interest compounded quarterly, how long until there is \$4500 in the account?

14. How much money would you need to deposit today at 5% annual interest compounded monthly to have \$20000 in the account after 9 years?

15. If you deposit \$6000 into an account paying 6.5% annual interest compounded quarterly, how long until there is \$12600 in the account?

16. If you deposit \$5000 into an account paying 8.25% annual interest compounded semiannually, how long until there is \$9350 in the account?

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