Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

1) Find out how long it takes a $3300 investment to double if it is invested at 9% compounded semiannually. Round to the nearest tenth of a year. Use the formula $A = P\left(1 + \dfrac{r}{n}\right)^{nt}$.

1) _____

2) The formula $A = 129e^{0.047t}$ models the population of a particular city, in thousands, t years after 1998. When will the population of the city reach 156 thousand?

2) _____

3) Cindy will require $17,000 in 4 years to return to college to get an MBA degree. How much money should she ask her parents for now so that, if she invests it at 10% compounded continuously, she will have enough for school? (Round your answer to the nearest dollar.)

3) _____

4) The size of the coyote population at a national park increases at the rate of 4.7% per year. If   4) _____
the size of the current population is 171, find how many coyotes there should be in 5 years.
Use $y = y_o e^{0.047t}$ and round to the nearest whole number.

Solve.

5) The function $A = A_0 e^{-0.01155x}$ models the amount in pounds of a particular radioactive   5) _____
material stored in a concrete vault, where x is the number of years since the material was
put into the vault. If 900 pounds of the material are initially put into the vault, how many
pounds will be left after 200 years?

6) The half–life of silicon–32 is 710 years. If 70 grams is present now, how much will be   6) _____
present in 500 years? (Round your answer to three decimal places.)

7) A fossilized leaf contains 28% of its normal amount of carbon 14. How old is the fossil (to   7) _____
the nearest year)? Use 5600 years as the half–life of carbon 14.