

Name: _____ Class: _____ Date: _____

Algebra 2 CP Sections 8.1-8.3 Practice

1. The number of newly reported cases of tuberculosis, T , (in thousands) in the US from 1991 to 1996 can be approximated by the equation $T = 28.5(0.9567)^t$, where t represents the number of years since 1991.
 - a) Identify the initial amount, the decay factor, and the annual percent decrease.

 - b) Estimate the number of newly reported cases in 2017 if this trend continues. Round to the nearest hundredth.

2. A diamond ring was purchased twenty years ago for \$775. The value of the ring increased by 8% each year. What is the value of the ring today rounded to the nearest dollar?

3. From 1991 to 1995, the number of computers, C , per 100 people worldwide can be modeled by $C = 25.2(1.15)^t$, where t is the number of years since 1991.
 - a) Identify the initial amount, the growth factor, and the annual percent increase.

 - b) Estimate the number of computers in 1995.

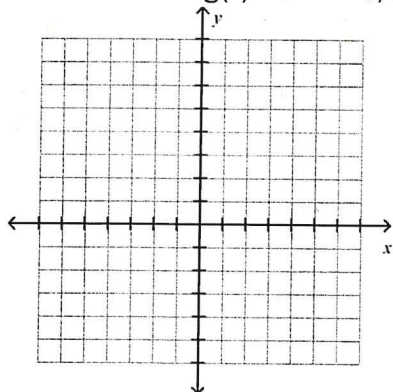
4. Jessy deposits \$3200 in an account that earns 4.75% annual interest. Find the balance after 5 years if the interest is compounded with the given frequencies.
 - a) quarterly
 - b) daily
 - c) semiannually

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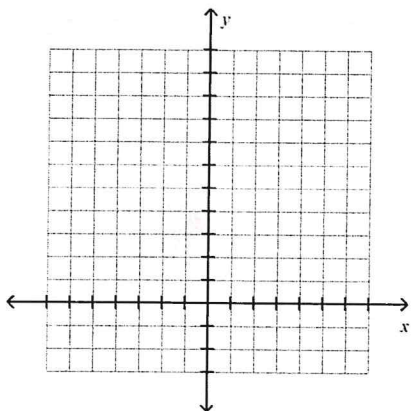
5. A new boat valued at \$27,000 depreciates at the rate of 12.7% per year.
- Write a function that models the value of the boat.
 - Find the value of the boat after two years.
6. When a certain medical drug is administered to a patient, the number of milligrams remaining in the patient's bloodstream after t hours is modeled by $D(t) = 50e^{-0.2t}$. How many milligrams of the drug remain in the patient's bloodstream after 3 hours? Round to the nearest thousandth.
7. Doctors use radioactive iodine as a tracer in diagnosing certain thyroid gland disorders. This type of iodine decays in such a way that the mass remaining after t days is given by the function $m(t) = 6e^{-0.087t}$ where $m(t)$ is measured in grams.
- Find the mass at time $t = 0$.
 - How much of the mass remains after 20 days? Round to the nearest thousandth.
8. If \$2000 is invested at an interest rate of 3.5% per year, compounded continuously, find the value of the investment after the given number of years.
- 2 years
 - 4 years
 - 12 years

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9. For the function $g(x) = e^{x-3} - 4$, make a table of values and graph.



10. **NO CALCULATOR:** For the function $f(x) = 2 \cdot \left(\frac{1}{4}\right)^x$, make a table of values and graph.



11. **NO CALCULATOR:** For the function $y = -\frac{1}{2} \cdot 2^{x+1} + 3$, make a table of values and graph.

