Name:	Class:	Date:	ID: A

Exponential functions 01 Class Time Examples

1. The amount *A* (in milligrams) remaining of *n* milligrams of a radioactive isotope after *t* days is given by $A = n \left(\frac{1}{2}\right)^{t/8}$ What percent of the isotope decays each day? If necessary, round your answer to the nearest
hundredth of a percent.
a. 9.25%
b. 12.5%
c. 25%
d. 8.3%

- 2. A family planned to reduce the amount of garbage it generated. The pounds of garbage *y* can be modeled by $y = 200(0.945)^t$ where *t* is years since 2009. Find the approximate monthly decrease in garbage the family generates. Round your answer to the nearest hundredth of a percent.
 - a.0.47%c.0.46%b.0.43%d.0.42%
- 3. The half-life of a certain radioactive material is 40 days. An initial amount of the material has a mass of 259 kg. Write an exponential function that models the decay of this material. Find how much radioactive material remains after 5 days. Round your answer to the nearest thousandth.

a.
$$y = 259 \left(\frac{1}{2}\right)^{40x}$$
; 0 kg
b. $y = 2 \left(\frac{1}{259}\right)^{\frac{1}{40}x}$; 0.999 kg
c. $y = 259 \left(\frac{1}{2}\right)^{\frac{1}{40}x}$; 237.504 kg
d. $y = \frac{1}{2} \left(\frac{1}{259}\right)^{\frac{1}{40}x}$; 0.25 kg

4. The half-life of a certain radioactive material is 51 hours. An initial amount of the material has a mass of 832 kg. Write an exponential function that models the decay of this material. Find how much radioactive material remains after 10 hours. Round your answer to the nearest thousandth.

a.
$$y = \frac{1}{2} \left(\frac{1}{832}\right)^{\frac{1}{51}x}$$
; 0.134 kg
b. $y = 832 \left(\frac{1}{2}\right)^{\frac{1}{51}x}$; 0.26.270 kg
c. $y = 832 \left(\frac{1}{2}\right)^{\frac{1}{51}x}$; 726.270 kg
d. $y = 2 \left(\frac{1}{832}\right)^{\frac{1}{51}x}$; 0.535 kg

Name:

5. In a lab, 530 cells are present at the beginning of an experiment. During the first 8 hours, the number of cells increased by 9% each hour. Write an exponential model giving the number of cells *y* present *t* hours after starting the experiment. Estimate the time when the number of cells is 1060.

a. $y = (530 \bullet 1.09)^{t}$; after about 1 hour	c. $y = 530(0.91)^{t}$; after about 0.8 hour
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- b. $y = 530(0.09)^{t}$; after about 9 hours
- d. $y = 530(1.09)^{t}$; after about 8 hours
- 6. The number of fish in a pond triples every 4 years. By what percent does the population change each year?
 - a. 76% growth

- c. 31.6% growth
- b. 31.6% decay d. 131.6% growth

Exponential functions 01 Class Time Examples Answer Section

- 1. D
- 2. A
- 3. C
- 4. C
- 5. D
- 6. C