Name: _____ Class: _____ Date: _____ ID: A

Exponential Decay and Growth Test Questions

1 Identify the function as exponential growth or decay. Then find the rate of growth or decay as a percent.

$$y = a(1.09)^t$$

Ⓐ Exponential growth, 9%
Ⓑ Exponential growth, 81%
Ⓒ Exponential decay, 9%
Ⓓ Exponential decay, 81%

2 Identify the function as exponential growth or decay.

$$y = a\left(\frac{8}{5}\right)^t$$

Ⓐ Exponential growth
Ⓑ Exponential decay

3 The value of a book is $258 and decreases at a rate of 8% per year. Find the balue of the book after 11 years.

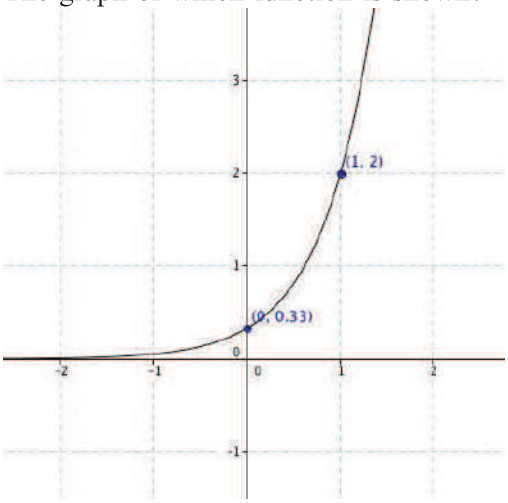
Ⓐ $56.98
Ⓑ $159.03
Ⓒ $101.38
Ⓓ $103.10

4 Write an exponential growth function to model the situation given below to find the value of the function after the given amount o time.

Membership of a local club grows at a rate of 7/8% yearly and currently has 30 members. Find the membership after 6 years.

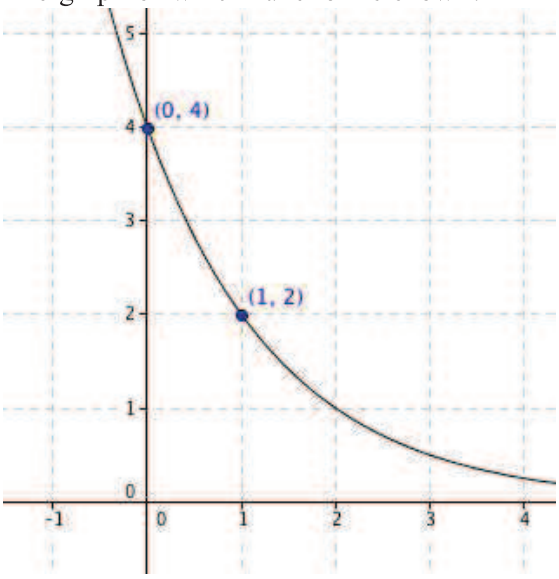
Ⓐ 44
Ⓑ 47
Ⓒ 53
Ⓓ 61

5 The graph of which function is shown?



Ⓐ $f(x) = 6^x$
Ⓑ $f(x) = \left(\frac{1}{3}\right)^x$
Ⓒ $f(x) = \frac{1}{3} \cdot 6^x$
Ⓓ $f(x) = 6 \cdot \left(\frac{1}{3}\right)^x$

6 The graph of which function is shown?



Ⓐ $y = (0.25)^x$

Ⓑ $y = (0.5)^x$

Ⓒ $y = 0.25 \cdot (0.5)^x$

Ⓓ $y = 4 \cdot (0.5)^x$

7 In 2004 a person purchased a car for $25,000. The value of the car decresed by 14% annually. *Describe* and correct the error in writing a function that models the value of the car since 2004. Justify your reasoning.

Error

$y = a(1 - r)^t$

$= 25{,}000(0.14)^t$