NAME:_____

1. Which equation models exponential decay?

   [A] $y = (3)(-2)^x$ [B] $y = \left(\frac{1}{4}\right)(2)^x$ [C] $y = (3.4)(0.2)^x$ [D] $y = (0.5)(1.2)^x$

2. Which function models exponential decay?

   [A] $y = 5 \cdot 3^x$ [B] $y = 3 \cdot 0.5^x$ [C] $y = 0.5 \cdot 5^x$ [D] $y = 0.05 \cdot 3^x$ [E] $y = 0.5 \cdot 3^x$

3. A population of 5000 doubles in size every year for 10 years. Which equation relates the size of the population *y* to the number of 10-year periods in *x*?

   [A] $y = 2 \cdot 5000^x$ [B] $y = 5000 \cdot 2^x$ [C] $y = 10 \cdot 2^x$ [D] $y = 5000 \cdot 10^x$ [E] $y = 2 \cdot 10^x$

4. Suppose the population of a city is 100,000 and is growing 4% each year. Write an equation to find the population after *x* number of years.

5. Write an exponential function to model the situation. Tell what each variable represents. A price of $115 increases 9% each month.

[1] C

[2] B

[3] B

[4] $y = 100{,}000 \cdot 1.04^x$

[5] $p = 115(1.09)^x$