

NAME: _____

P.I. A.A.9: Analyze and solve verbal problems that involve exponential growth

P.I. A2.A.6: Solve an application which results in an exponential function

1. 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] $y = 2 \cdot 10^x$
2. 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.
3. The population of Mexico in mid-1994 was 91,800,000. Its annual growth rate is 2.2%. Estimate its population in mid-2000.
4. This table shows information about the population of two countries in South America.

Country	Population (est., mid - 1994)	Annual Population Growth Rate
Chile	14,000,000	1.7%
Ecuador	10,782,000	2.5%

Will the population of Ecuador surpass the population of Chile by mid-1999?

[1] B

[2] $y = 100,000 \cdot 1.04^x$

[3] 104,600,000

[4] no