EXPONENTIAL GROWTH AND DECAY – DAY 2

1. Which option would you choose?

   Option 1: You receive $1000 a year for 20 years.

   Option 2: You receive $1 the first year, $2 the second year, $4 the third year, and so on, doubling the amount you receive each year for 20 years.

   A) Write a function for the total amount of money, y, you have received after x years for each option.

   Option 1: _____ Option 2: _____

   B) Fill in the table to find the total amount of money you have received after the given number of years.

Number of Years	Amount of Money (Option 1)	Amount of Money (Option 2)
5		
10		
15		
20		

2. A toy is made up of circular rings stacked on a base. The diameter of Ring 1 is 85% of the diameter of the base. For Ring 2 through Ring 5, the diameter of each ring is 85% of the ring directly below it.

   A) If the diameter of the base is 6 inches, write a function that could be used to find d, the diameter in inches of ring r, where $1 \leq r \leq 5$.

   B) What is the diameter of Ring 5, rounded to the nearest tenth?

3. For some time now, the population of the United States has been increasing at an average annual rate of 0.96%. In 2013, the population was 316.5 million.

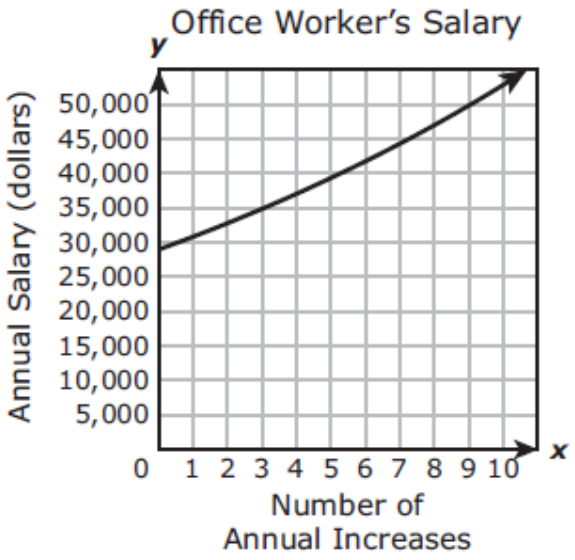
   A) Write a function to find the population of the United States, y, after x years.

   B) Predict the population in 2020.

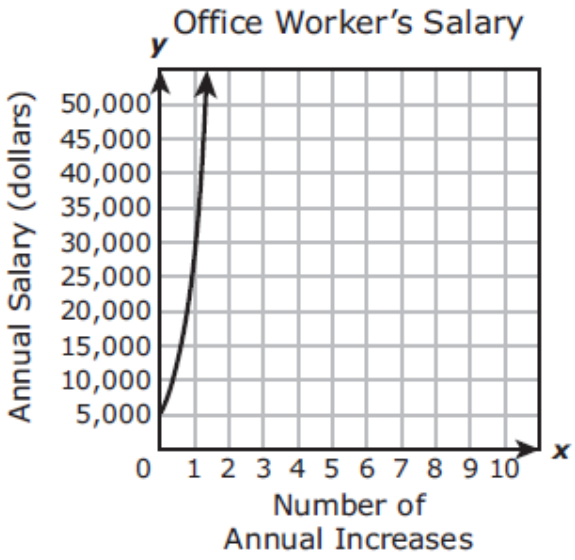
   C) When will the population surpass 400 million?

4. The starting annual salary for an office worker at a company is $29,000. If the company awards an annual increase of 6.2%, which graph models this situation after the office worker receives *x* annual increases?

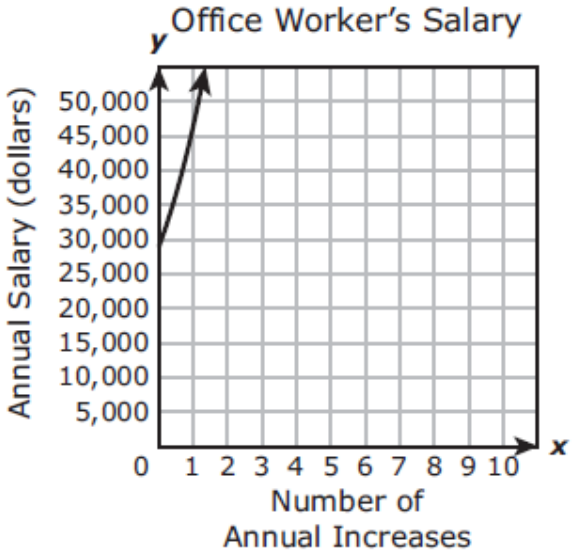
A



C



B



D