

Name:

ANSWERS!

Class:



Communication



Successful Partnership



Encouragement



Solving Problem Together



Collaboration

Question 01

These equations represent the number of bacteria in four different dishes as a function of time,  $t$ , in days. Which equation represents the population with the greatest growth factor?

A.  $a(t) = 1,000 \cdot \left(\frac{5}{6}\right)^t$

B.  $b(t) = 800 \cdot \left(\frac{1}{50}\right)^t$

C.  $c(t) = 600 \cdot \left(\frac{5}{2}\right)^t$

D.  $d(t) = 400 \cdot 3^t$

3 is the greatest multiplier  
growth rate is 200%

Question 02

A group of biologists is surveying the mice population in a forest. The equation  $n = 75 \cdot 3^t$  gives the total number of mice,  $n$ ,  $t$  years since the survey began. Explain what the numbers 75 and 3 mean in this situation.

75 mice to start with

3 means the mice population  
triples every year

Question 03

The milligrams of aspirin in a person's body is given by the equation  $a = 500 \cdot \left(\frac{3}{4}\right)^t$ , where  $t$  is the number of hours since the patient took the medicine.

a. How much aspirin will be in the patient's body after two hours?

$$500 \left(\frac{3}{4}\right)^2 = 500 \times 3 \div 4 \times 3 \div 4 = 281.25$$

b. In the equation, what does the 500 tell us about the situation?

The person took 500 mg of aspirin

c. In the equation, what does the  $\frac{3}{4}$  tell us about the situation?

The person loses 25% of the aspirin every hour

(They do not lose 75%)