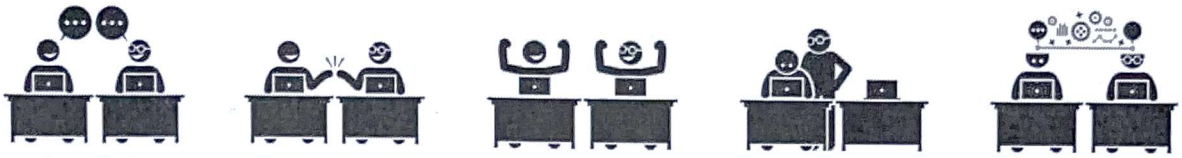
Name: ANSWERS! Class:



1. In a biology lab, 500 bacteria reproduce by splitting. Every hour, on the hour, each bacterium splits into two bacteria.

   a. Write an expression to show how to find the number of bacteria after each hour listed in the table.
   b. Write an equation relating n, the number of bacteria, to t, the number of hours.
   c. Use your equation to find n when t is 0. What does this value of n mean in this situation?

hour	number of bacteria
0	500
1	1,000
2	2,000
3	4,000
6	8,000
t	

$f(x) = a(1+r)^x$

initial amount

growth rate

$n = 500(2)^t$

original amount

$1 + 100\%$

growth rate is 100%

2. In a different biology lab, a population of single-cell parasites also reproduces hourly. An equation which gives the number of parasites, p, after t hours is $p = 100 \cdot 3^t$. Explain what the numbers 100 and 3 mean in this situation.

$p = 100 \cdot 3^t$

"100" means there were 100 "single-cell parasites" when the experiment began

"3" means the parasites triple every hour.

growth rate = 200%