

### Compound Interest Formulas

Let  $P$  = original amount,  $t$  = number of years,  $A$  = balance after  $t$  years,  $r$  = annual interest rate,  $n$  = number of times interest is compounded per year...

Interest compounded  $n$  times per year:  $A = P \left(1 + \frac{r}{n}\right)^{n \cdot t}$

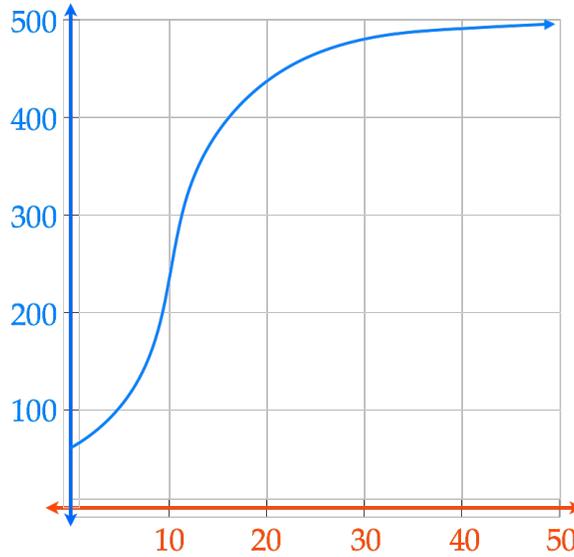
Interest compounded continuously:  $A = Pe^{r \cdot t}$

A deposit of \$3,500 is made into a bank account that pays an annual interest rate of 4%. Find the balance at the end of 6 years if the interest is compounded quarterly, monthly, and continuously.

The population of bacteria can be found by the equation

$$y = \frac{500}{1 + 8e^{-t/5}} \text{ where } t \text{ is measured in days.}$$

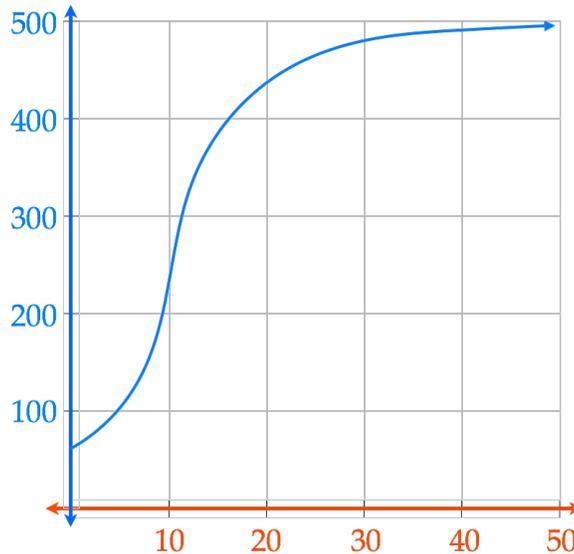
Use a graphing utility to graph the function



The population of bacteria can be found by the equation

$$y = \frac{500}{1 + 8e^{-t/5}} \text{ where } t \text{ is measured in days.}$$

Determine the pollution after 13 days and 22 days.



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$$y = \frac{500}{1 + 8e^{-t/5}} \text{ where } t \text{ is measured in days.}$$

What is the Limit as  $t$  approaches infinity?

