Logistic Growth Model

Example (Revisited): We are growing a bacteria colony on a petri dish. The model to describe the population is:

$$P(t) = 160 \cdot 1.5^t$$

$t =$# of days; $P(t) =$ population after t days

$P(100) =$

New Model Traits:

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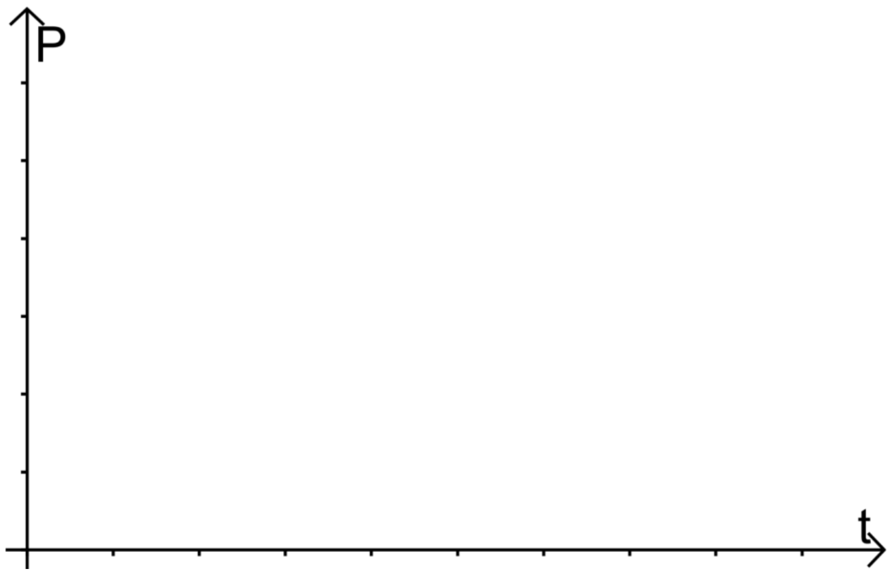
A function that has these traits is:

Notes:



Modelling Sales:

Point of Diminishing Return: $P =$

Example: Suppose that we can model the sales of calendars as:

$$P(t) = \frac{2000}{1 + 99e^{-.6t}}$$

Where $t =$ # of days since December 15th.

How many calendars were sold by December 24th?

What is the most number of calendars that we will sell?

On which day will the calendars be selling the fastest?

$$P(t) = \frac{L}{1 + Ce^{-kt}}$$

Example: Suppose that the downloads of a new album can be modeled by the Logistic Growth Model. Suppose that to get the music out, we distribute 2000 downloads for free. We notice that in the beginning sales are growing exponentially, with a continuous growth rate of $k = .1$, but then sales start to slow down once we have sold 200,000 copies. What is the Logistic Growth Model for the sale of downloads?