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## The Logistic Growth Model



0:00 / 6:45

▶ 1.0x



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constant linear growth or constant linear decay,

and the exponential function assumes constant percent growth

or constant percent decay.

But is it reasonable to make this assumption of consistency?

I love the exponential model.


In my fall semester classes, I've introduced the idea of the exponential growth with some references to zombie movies because the topic

## Comprehension Check


1. The spread of this season's flu virus can be modeled logistically. A group of 500 people were initially infected in a town of 75,000 people. One month later, 750 people were infected.

## Function Models

### Readings


Reading Check due  
Mar 15, 2016 at 18:00  
UTC 

### Lecture Videos

Comprehension Check  
due Mar 15, 2016 at  
18:00 UTC 

### R Tutorial Videos


### Pre-Lab

Pre-Lab due Mar 15,  
2016 at 18:00 UTC 

### Lab

Lab due Mar 15, 2016  
at 18:00 UTC 

### Problem Set

Problem Set due Mar  
15, 2016 at 18:00 UTC 

Use this data to construct a logistic growth model (shown below) for the spread of the flu in this town and answer the following questions.

$$f(t) = \frac{C}{1 + ab^{-t}}$$


(1/1 point)

1a. What is the value of **C**?

☐ 500

☐ 750

☐ 15,800

☒ 75,000 

(1/1 point)

1b. Using the value of **C** determined in the previous question, what is the value of **a**, if you know that **f(0) = 500**? (Round to a whole number.)

149

 Answer: 149

149

(1/1 point)

1c. Using the values of **a** and **C** determined in the previous question, what is the value of **b**, if you know that **f(1) = 750**. (Round to 3 decimal places.)

1.505

 Answer: 1.505

1.505

(1/1 point)

1d. The point that the model begins to show signs of slowing down (or “flipping over”) is called the

☐ "a" parameter

☐ log of "b"

☐ carrying capacity

☒ inflection point ✓

(1/1 point)

1e. Approximately how many people will have been infected with the flu when growth begins to slow down?

☐ 18,900

☐ 22,800

☒ 37,500 ✓

☐ 41,650

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