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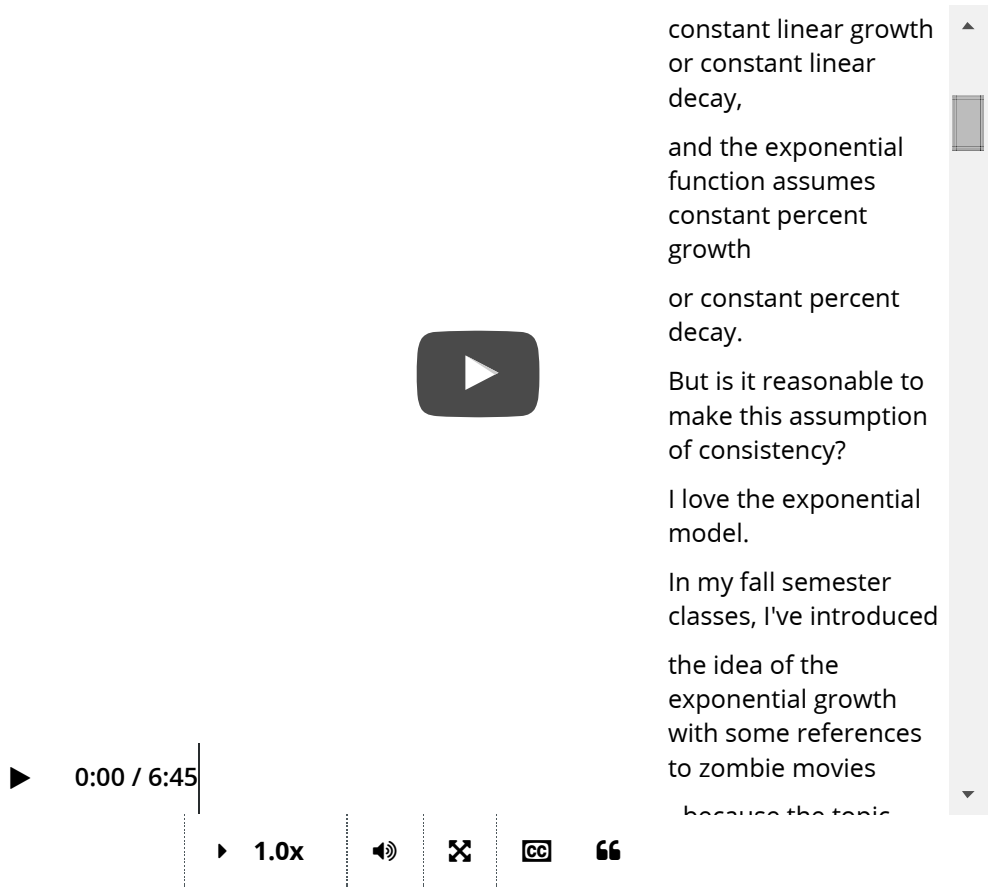
The Logistic Growth Model



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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.

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