

Logistic Growth

Goal:

- Can build differential equations that reflect logistic growth

Terminology:

- Logistic

Discussion question: Consider the situation we are currently in. COVID-19 is currently spreading exponentially (i.e. proportional to the amount of people who have the virus), but it can't go on forever. Eventually, either a vaccine will be developed or it burns itself out and everyone on Earth gets it but we cannot say that as $t \rightarrow \infty$ that the number of COVID-19 cases, $n \rightarrow \infty$. Write a differential equation that could be used to describe the how the number of cases changes over time.

We will NOT be solving this differential equation (although it does have a solution). Instead we can use technology to predict the solution curve.

Example: A new meme is kind of like a virus. It will get shared and shared until everyone has either seen it or a person was never aware the meme existed. Write a differential equation for the number of people who have seen the following meme. Three years after "*I can has cheezburger?*" was created 16 million people had seen it. Today 20 million people know it (assume this is the limit). Use technology to predict k .

