## Unit 5 Lesson 12: Reasoning about Exponential Graphs (Part 1)

### 1 Spending Gift Money (Warm up)

#### Student Task Statement

Jada received a gift of $180. In the first week, she spent a third of the gift money. She continues spending a third of what is left each week thereafter. Which equation best represents the amount of gift money , in dollars, she has after weeks? Be prepared to explain your reasoning.

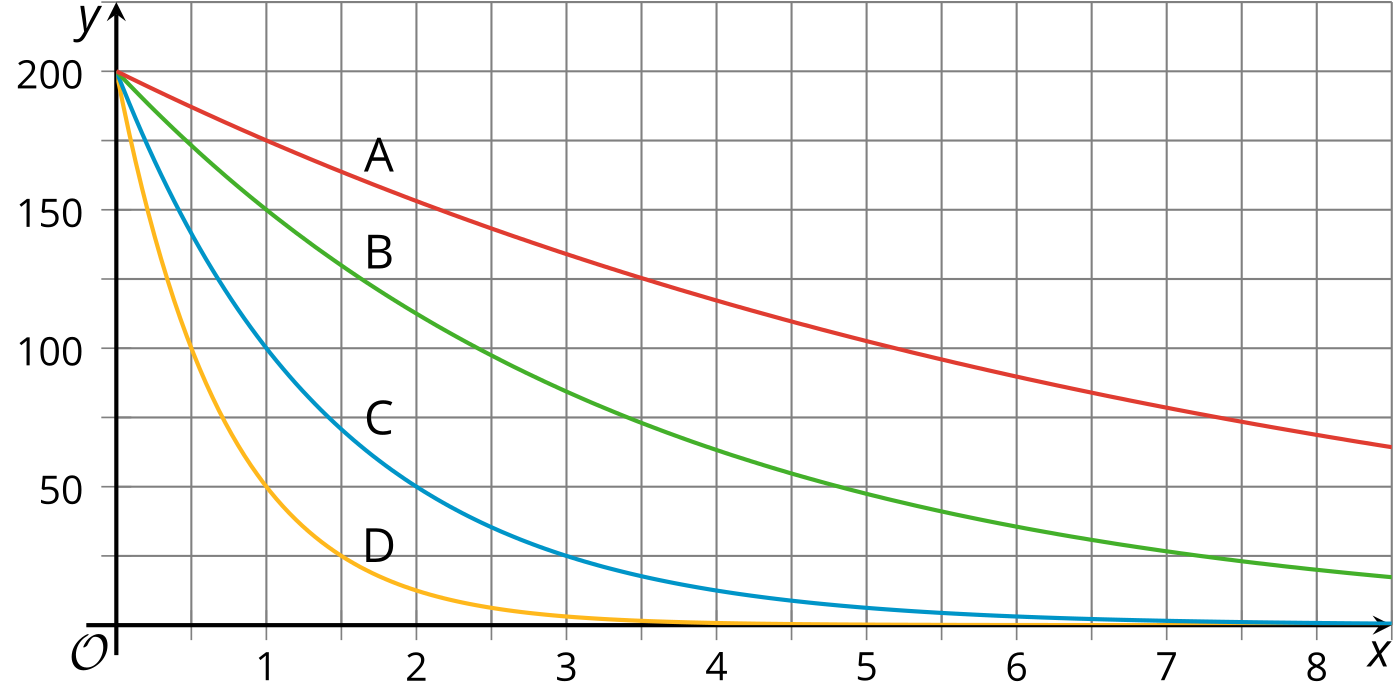
### 2 Equations and Their Graphs

#### Student Task Statement

1. Each of the following functions ,  , and  represents the amount of money in a bank account, in dollars, as a function of time , in years. They are each written in form .  
     
     
     
   1. Use graphing technology to graph each function on the same coordinate plane.
   2. Explain how changing the value of changes the graph.
2. Here are equations defining functions , , and . They are also written in the form .  
     
     
   1. Use graphing technology to graph each function and check your prediction.
   2. Explain how changing the value of changes the graph.

### 3 Graphs Representing Exponential Decay

#### Student Task Statement



1. Match each equation with a graph. Be prepared to explain your reasoning.
2. Functions and are defined by these two equations: and .
   1. Which function is decaying more quickly? Explain your reasoning.
   2. Use graphing technology to verify your response.



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