Unit 6, Lesson 12

Connections between Graphs and Equations

Let's examine some situations, equations, and graphs.

12.1 Math Talk: Evaluating a Function

Here is a function: $g(x) = 100 - 5x$

Evaluate mentally:

- $g(0)$
- $g(1)$
- $g(4)$
- $g(20)$

12.2 Bank Accounts

Each function represents the amount in a bank account after t weeks.

$A(t) = 500$ $B(t) = 500 + 40t$ $C(t) = 500 - 40t$

$D(t) = 500 \cdot (1.5)^t$ $E(t) = 500 \cdot (0.75)^t$

1. Make a table for each bank account showing the money in the account at 0, 1, 2, and 3 weeks.

t	$A(t)$
0	
1	
2	
3	

t	$B(t)$
0	
1	
2	
3	

t	$C(t)$
0	
1	
2	
3	

t	$D(t)$
0	
1	
2	
3	

t	$E(t)$
0	
1	
2	
3	

2. Describe in words how the money in the account is changing week by week.

3. Use technology to create a graph of each function. How can you see your description in each graph?

12.3 Build a New Function

Consider the same five functions:

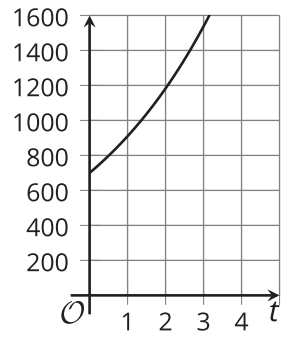
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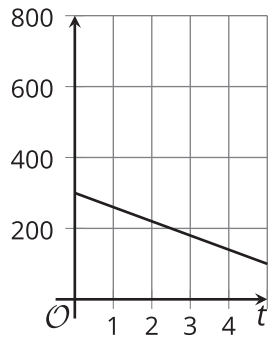
1. For each of the following descriptions, choose a different function from the given list and change it so it matches the description.
   a. starts with a balance of \$300 and loses \$40 each week
   b. starts with a balance of \$500 and gains \$15 each week
   c. starts with a balance of \$500 and loses $\frac{1}{10}$ of its value each week
   d. starts with a balance of \$700 and gains $\frac{3}{10}$ of its value each week

2. Here are four graphs. For each of your new equations, choose a graph that matches it. Explain your reasoning.

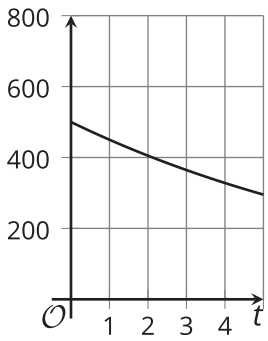
graph 1



graph 2



graph 3



graph 4

