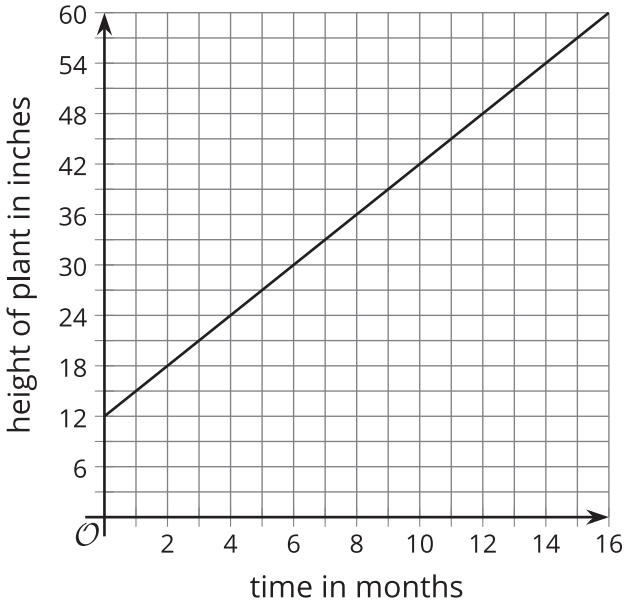
Unit 6, Lesson 10

Rate of Change

Let's calculate the rate of change of some relationships.

10.1 Growing Bamboo

The graph represents function h that gives the height in inches of a bamboo plant t months after it has been planted.



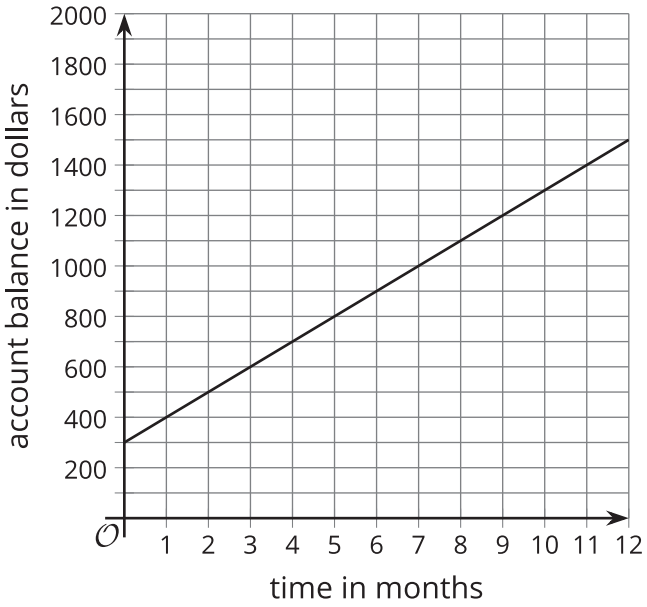
1. What does this statement mean? $h(4) = 24$

2. What is the value of $h(10)$?
3. What is t if $h(t) = 30$?
4. What is the value of $h(12) - h(2)$?

5. How many inches does the plant grow each month? How can you see this on the graph?

10.2 A Growing Account Balance

The balance in a savings account is defined by the function b. This graph represents the function.



1. Find the values:
   a. $b(3)$
   b. $b(7)$
   c. $b(7) - b(3)$
   d. $7 - 3$
   e. $\frac{b(7) - b(3)}{7 - 3}$

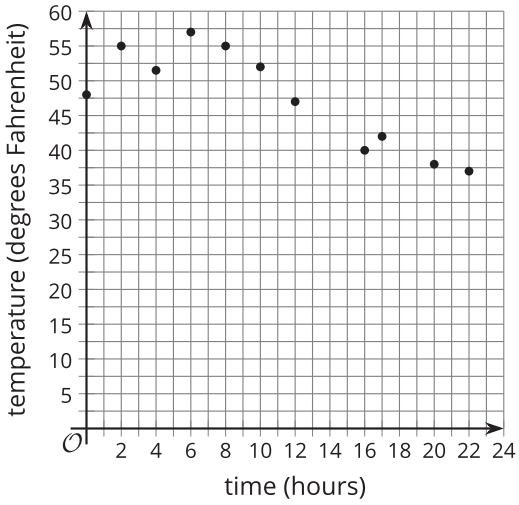
2. Calculate $\frac{b(11) - b(1)}{11 - 1}$.

3. You should have gotten the same value twice. What does this value have to do with this situation?

10.3 The Temperature Outside

Here are a graph and a table that represent the same function. The function relates the hour of day to the outside air temperature in degrees Fahrenheit at a specific location.

t	$p(t)$	t	$p(t)$
0	48	6	57
1	50	7	56
2	55	8	55
3	53	9	50
4	51.5	10	52
5	52.5		



Match each expression to a value. Then explain what the expression means in this situation.

1. $p(12)$
2. $p(8)$
3. $p(12) - p(8)$
4. $12 - 8$
5. $\frac{p(12) - p(8)}{12 - 8}$
6. $p(10)$
7. $p(20)$
8. $p(10) - p(20)$
9. $10 - 20$
10. $\frac{p(10) - p(20)}{10 - 20}$

- 4
- -2
- 47
- -1.4
- 55
- 14
- -8
- 38
- -10
- 52