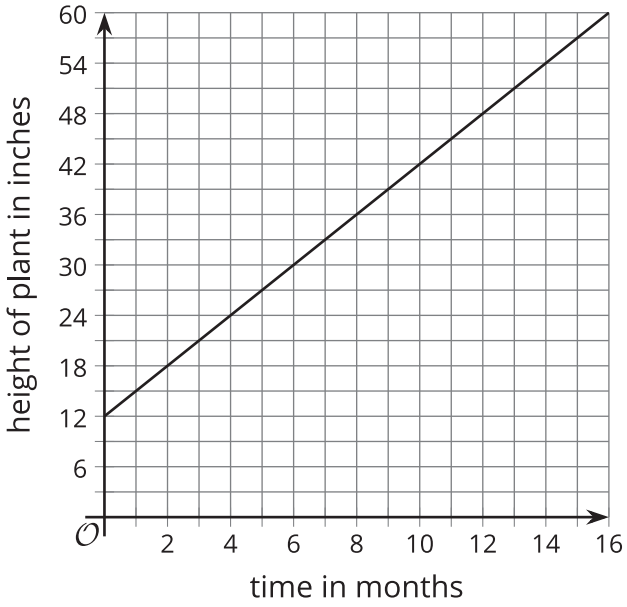
Unit 6, Lesson 13

# Rate of Change

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

## 13.1 Growing Bamboo

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



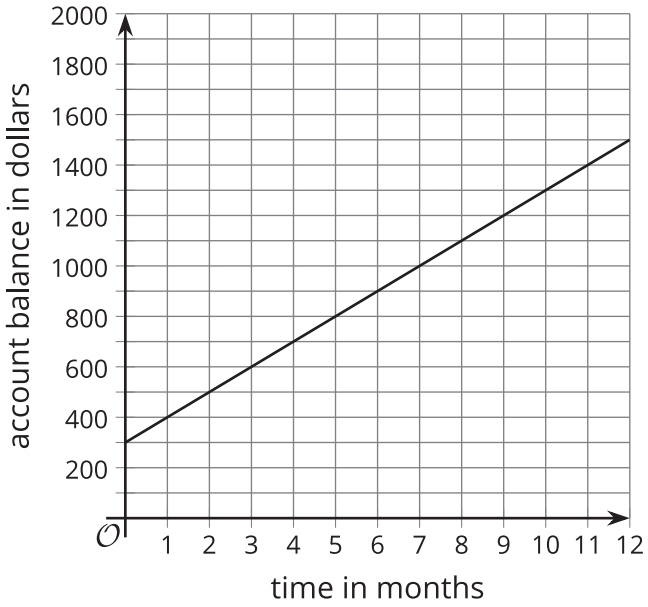

1. What does this statement mean? $h(4) = 24$

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?

# 13.2 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. $\frac{b(7) - b(3)}{7 - 3}$

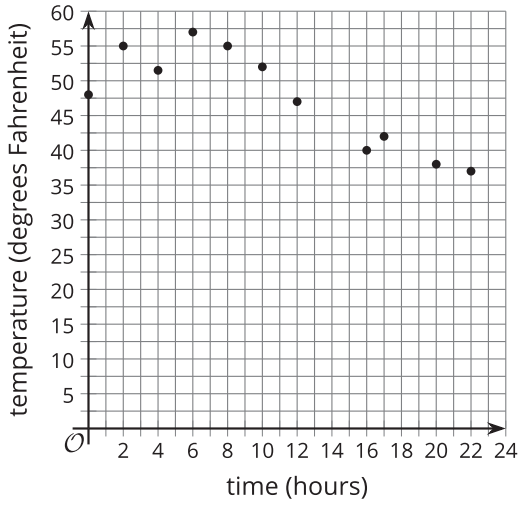
2. Calculate $\frac{b(11) - b(1)}{11 - 1}$.

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

# 13.3 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