

Solve the problem.

- 1) The following data represent the population of an unknown bacteria when an antibacterial solution has been applied to the culture of bacteria.

Time (hours)	Population (# of bacteria)
0	2000
1	1960
2	1922
3	1884
4	1846
5	1810
6	1774

- a) Find and interpret the average rate of change of the population from 0 to 3 hours.
 b) Find and interpret the average rate of change of the population from 3 to 5 hours.
- 2) Suppose that you throw a ball upward with an initial velocity of 20 meters per second from the top of a building that is 40 meters tall. You measure the height of the ball at time t and obtain the following data.

Time (seconds)	Height (meters)
0	40
1	55.1
2	60.4
3	55.9
4	41.6
5	17.5

- a) Find and interpret the average rate of change of the height of the ball from 0 to 2 seconds.
 b) Find and interpret the average rate of change of the height of the ball from 2 to 4 seconds.
- 3) The following data represent the total monthly cost of growing and maintaining trees at a nursery.

Trees, x	Total Cost (\$)
0	800
10	805
25	812.50
45	822.50
75	837.50
120	860

- a) Find and interpret the average rate of change of cost from 0 to 10 trees.
 b) Find and interpret the average rate of change of cost from 10 to 25 trees.