

IM2 – 3.2 (P – bV1) Key Characteristics in Context – Average Rate of Change

F.IF.6



Name: _____ Per: _____ Date: _____

Directions - Answer each of the following questions with the context above in mind.

Context: The fish population, $F(x)$, in a certain part of the ocean (in thousands of fish) as a function of the water's temperature, x , (in degrees Celsius) is modeled by: $F(x) = -2x^2 + 40x - 72$

1. Fill in the table of values below:

x	F(x)
0	
3	
4	
12	
14	
17	

2. What is the average rate of change, in thousands of fish, for temperatures from 3°C to 4°C?

3. What is the average rate of change, in thousands of fish, for temperatures from 3°C to 12°C?

4. What is the average rate of change, in thousands of fish, for temperatures from 4°C to 6°C?

5. What is the average rate of change, in thousands of fish, for temperatures from: $0 < x < 17$?

Context: Mr. Calhoun is a professional deep-water free diver. His altitude, $A(x)$, (in meters relative to sea level), x seconds after diving, is modeled by: $A(x) = \frac{1}{3}x^2 - 10x + 5$

1. Fill in the table of values below:

x	$A(x)$
1	
3	
6	
14	
15	
19	
21	
28	

2. What is the average rate of change, in meters, when Mr. Calhoun has been diving from 1 to 6 seconds?

3. What is the average rate of change, in meters, when Mr. Calhoun has been diving from 3 to 19 seconds?

4. What is the average rate of change, in meters, when Mr. Calhoun has been diving from 0 to 15 seconds?

5. What is the average rate of change, in meters, for the interval of seconds from: $15 < x < 21$?