

MHF 4U **Quiz 2.1-2.5**

$$\frac{1}{19} + \frac{1}{1}$$

Name \_\_\_\_\_

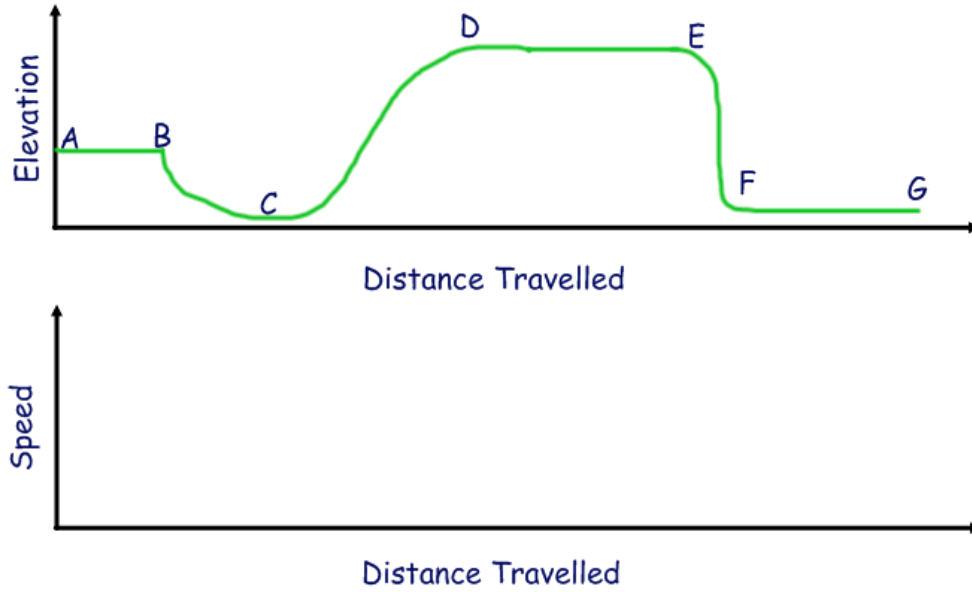
1. Average Rate of Change = slope of \_\_\_\_\_  
[1] Instantaneous Rate of Change = slope of \_\_\_\_\_
2. The population of a colony of rats is changing according to the model  $P(t) = 5t^2 - 4t + 7$ , where  $t$  is measured in minutes. Determine the average rate of change of population during the first 10 minutes. [3]

3. Estimate the instantaneous rate of change for the function

$f(t) = 50 - 20 \cos\left(\frac{8\pi}{3} t\right)$  when  $t=0.5$  seconds using the preceding and following method. [3]

4. Estimate the instantaneous rate of change for the function  $f(x) = \frac{3x - 1}{x^2}$  when  $x = 4$ . Use the difference quotient method. [3]

5. The picture shows the elevation of a cross-country ski trail. Sketch a graph of the possible speed of a skier versus the distance traveled along the trail. [3]



6. Describe the following graphs. Use at least 3 descriptors for both. [3]

