

Name _____

MATH-1951

Quiz 1 - (2.1, 2.2)

Answer the following questions, and show your work. Scientific calculator only.

[1] (4 points total) If a rock is thrown upward on the planet Mars with a velocity of 10 m/s , its height in meters t seconds later is given by $y = 10t - 1.86t^2$.

(a) (0.5 pt each) Find the average velocity over the given time intervals:

i) $[1,2]$

ii) $[1,1.5]$

iii) $[1, 1.1]$

iv) $[1, 1.01]$

v) $[1, 1.001]$

(b) (1.5 pt) Estimate the instantaneous velocity when $t = 1$.

[2] (6 points total) Sketch the graph of an example of a function f with domain $[-8, 0) \cup (0, 8]$ that satisfies all of the given conditions.

$$\lim_{x \rightarrow 2^-} f(x) = -2, \quad \lim_{x \rightarrow 2^+} f(x) = -1, \quad f(2) = 0, \quad \lim_{x \rightarrow -5} f(x) = \infty$$

