Name: _____
MATH 111-I
Spring 2025
Quiz 3

Problem 1: Compute the average rate of change for $f(x) = 1 - 3x$ on the interval $[-1, 1]$. Show all your work.

Problem 2: A physicist is tracking the temperature of a metal rod as a heat pulse is 'injected' into the rod. The physicist observes that the rate of change in the temperature in the rod is constant. They will build a model for the temperature of the rod (in Kelvin), $K(t)$, t minutes from now.

(a) Explain why $K(t)$ is linear.

(b) Suppose that $K(t) = 0.9t + 297$. Find and interpret the slope of $K(t)$.

(c) Still assuming $K(t) = 0.9t + 297$, find and interpret the y-intercept of $K(t)$.

(d) Assuming $K(t)$ is given as above, compute $K(10)$. Explain what $K(10)$ represents.