

1) Find the value of c implied by mean value theorem for the following function

$$f(x) = 3x^2 + 2x^2 - 1 \tag{1}$$

on the interval $[0, 1]$.

Find the point at which the average velocity is equal to instantaneous velocity.

Hint: First, find the average velocity in this interval and then find the derivative of this function. Remember! They are supposed to be equal at that promising point! If you are in right track then the point you find in second section must be equal to c .

2) Suppose f is given by the relation

$$f(x) = \frac{1}{3}x^3 - 2x^2 + 3x \quad (2)$$

Find the intervals at which f is increasing or decreasing.