

AP:

Homework  
10/2-10/6

due: Tuesday:

1. pp. 136-137 / #13, 23, 24
2. A particle moves along the x-axis in such a way that its position at time  $t$  for  $t \geq 0$  is given by  $x(t) = \frac{1}{3}t^3 - 3t^2 + 8t$ .
  - a. Show that at  $t = 0$  the particle is moving to the right.
  - b. Find all values of  $t$  for which the particle is moving to the left.
  - c. Find the velocity and the position of the particle at  $t = 3$ .
3. A particle moves along the x-axis so that its position at time  $t$  is given by  $x(t) = (t - 1)(t + 1)^3$ . Find the average velocity of the particle for  $0 \leq t \leq 2$ .

on: Wednesday: test

due: Friday: read pp. 148-152

1. pg. 153 / #13, 16, 19, 20
2. Find  $\frac{dy}{dx}$ : (a)  $y = (4 - 3x)^9$  (b)  $y = \left(\frac{x}{x-1}\right)^{-3}$  (c)  $y = \frac{2}{7x^2+3x-1}$
3. Write an equation of the tangent line to the curve  $y = (x^2 - 5x + 2)^3$  at the point whose abscissa is 4.

Tuesday:

1. pp. 153-154 / #46, 58abcde
2. Write an equation of the normal line to the curve  $y = (x + 3)^2(2x + 1)^3$  at the point whose abscissa is  $-1$ .
3. If  $y = (x^2 + 1)^2$ , find the derivative of  $y$  with respect to  $x^2$ .
4. If  $y = x^2 + x$ , find the derivative of  $y$  with respect to  $\frac{1}{1-x}$ .
5. Let  $f(x)$  and  $g(x)$  be functions defined by  $f(x) = x^2 - 3$  and  $g(x) = 3x + 4$ . If  $h(x) = f(g(x))$ , find  $h'(2)$ .