

Math 180
Spring 2010

Name _____

Homework #6
Due Thursday, April 1
No late papers accepted! No excuses!

1. At time $t \geq 0$, the velocity of a body moving along the x-axis is $v(t) = t^2 - 4t + 3$.
 - a) Find the body's acceleration each time the velocity is zero.
 - b) When is the body moving forward? Backward?
 - c) When is the body's velocity increasing? Decreasing?

2. Find each derivative.

a) $y = \frac{\sin t}{1 - \cos t}$

b) $y = \sqrt{x^2 - 1}$

c) $y = \sec x \csc x$

d) $y = \cot\left(\frac{\sin x}{x}\right)$

e) $y = \left(e^{\sin(x/2)}\right)^3$

f) $y = \ln(\sin x)$

3. Find the second derivative of $y = \sec x$.

