

Math 180  
Winter, 2009

Name \_\_\_\_\_

Homework #7  
Due Wednesday, January 21  
No late papers accepted! No excuses!

1. Find an equation for the line tangent to the curve at the point defined by the given value of  $t$ . Also, find the value of  $d^2y/dx^2$  at this point.

$$x = t - \sin t$$

$$y = 1 - \cos t$$

$$t = \pi/3$$

2. Use implicit differentiation to find  $\frac{dy}{dx}$ .

a)  $e^{x^2y} = 2x + 2y$

b)  $\sin(xy) = \frac{1}{2}$

c)  $xy = \cot(xy)$

d)  $y^2 = \sqrt{\frac{1+x}{1-x}}$

3. The line that is normal to the curve  $x^2 + 2xy - 3y^2 = 0$  at  $(1, 1)$  intersects the curve at what other point?