**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**October 30th, 2012**

**AP Calculus 1, Mrs. Sulkes**

**3.5 Implicit Differentiation**

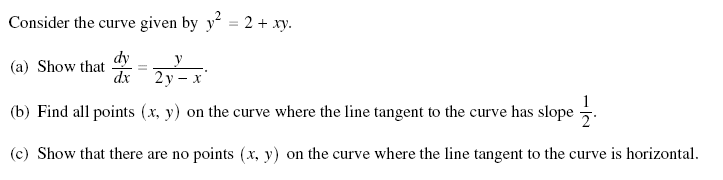
1. Show that   for the relation .

2. Given the curve ,

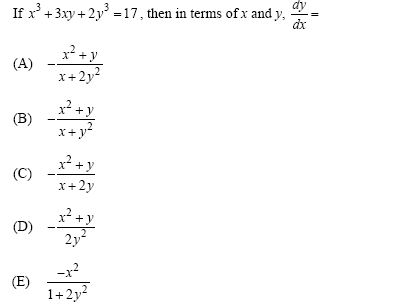
a. Write an expression for the slope of the curve at any point  on the

curve. (That is, find .)

1. Write an equation for the tangent line to the curve at the point (2,1).
2. Find the coordinates of the all other points on this curve with slope equal to the slope at (2,1).

3. 

4.



5. Given the equation , find the following:

a. Graph the equation. Is this a function?

b. What is the domain?

1. At which x values is the equation NOT differentiable? Prove analytically.
2. At which x value(s) is the tangent line vertical? Explain how you arrived at your answer.

6. Given: , answer the following:

a. Graph the circle.

b. At which *x* values on the circle is the equation NOT differentiable? Show analytically.