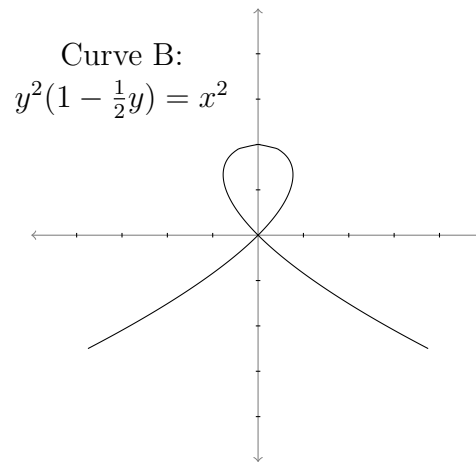# Math 141 Worksheet 5
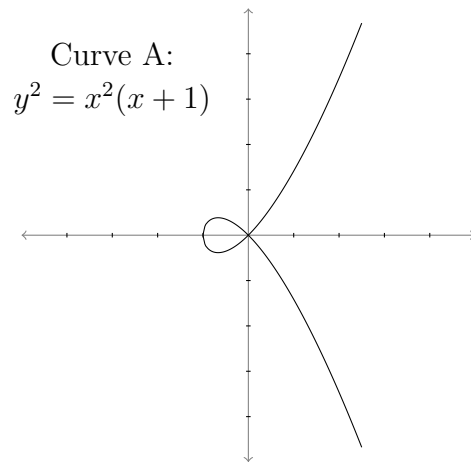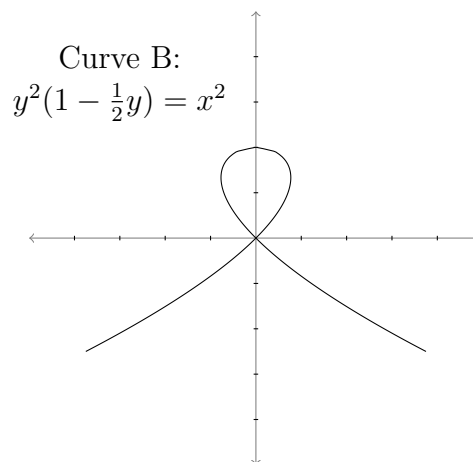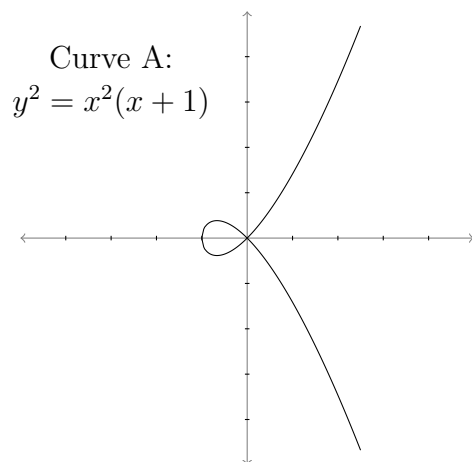
Name: _____

In this worksheet, we'll practice implicit differentiation with the curves below.

Curve A:
$$y^2 = x^2(x+1)$$

Curve B:
$$y^2(1 - \tfrac{1}{2}y) = x^2$$

1. Looking at the graph, how many points are there on Curve A that have a horizontal tangent line? What about Curve B?

2. Use implicit differentiation to find the points (x, y) on Curve A with a horizontal tangent line.

3. Use implicit differentiation to find the points (x, y) on Curve B with a horizontal tangent line.

Curve A:
$$y^2 = x^2(x+1)$$

Curve B:
$$y^2(1 - \tfrac{1}{2}y) = x^2$$

4. How many lines are tangent to Curve A at the point $(0,0)$? What about Curve B?

5. Try to find $\frac{dy}{dx}$ at the point $(0,0)$ on both graphs. Explain what goes wrong.

We'll return to these examples near the end of the course. At that time, we'll have a new tool that will allow us to find the lines that are tangent to the curves at the point $(0,0)$!