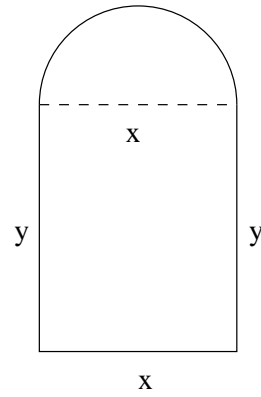


Name: _____

CALCULATORS ALLOWED

1. [10 points] A Norman window is constructed by adjoining a semi-circle to the top of an ordinary rectangular window. Find the dimensions of a Norman window of maximum area if the total perimeter is 16 feet.



2. [10 points] Let $xy^2 - 2\sin(xy) = 4$. Find y' as a function of x and y .

3. [10 points] Sketch the graph of $y = e^{-x^2}$. Find the x coordinates of the two inflection points. Indicate where the graph is concave up and concave down.