

Discussion Problems for Math 180

Tuesday, March 3, 2015

Review

1. Sketch a graph of the function $x^3 + 5x - 1$.
2. Sketch a graph of the function $\ln(x)/x$.

This time

3. If $x + 7y = 1$, how large can xy be?
4. [Briggs and Cochran, 4.4.24] A rectangle is constructed with its base on the x -axis and two of its vertices on the parabola $y = 16 - x^2$. What are the dimensions of the rectangle with the maximum area, and what is this area?
5. [Briggs and Cochran, 4.4.26] A 60 centimeter-long wire cut into two pieces, and the resulting two pieces are formed to make a circle and a square.
 - (a) Where should the wire be cut to minimize the combined area of the circle and square?
 - (b) ... to maximize it?
6. [Briggs and Cochran, 4.4.28] A marble is placed into a (cylindrical) pot which is eight inches across. The pot is then filled with water until the marble is just covered. What radius of marble requires the most water to cover?