Math 104 90A[1] November 1^{st}, 1999. Worksheet 10

http://www.math.ubc.ca/~ athreya/104

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1. Find the critical points, relative extrema and the regions where the function is increasing and decreasing for the following functions:

   (a) $y = x^3 - x$

   (b) $y = x^3 e^{-x}$.

   (c) $y = xe^{3x}$.

2. Practice problems from 13.3,13.5

   (a) Find $\frac{dy}{dx}$ of the curve

   $$x \tan(\pi y) + y^2 \cos(\pi x) + \frac{x}{y^2 + 3} = 4.$$

   (b) Find y^1 in terms of x and y for the curve

   $$\tan^{-1}(xy^2) + x + y = 2$$

3. Practice problems from 13.1,13.2

   (a) First find the x-coordinate of all point(s) where the tangent line to the curve

   $$y = x(\ln x)^2$$

   is parallel to the x-axis, then find the equation of the tangent(s).

   (b) First find the x-coordinate of all point(s) where the tangent line to the curve

   $$y = x^3 e^{-x}$$

   is parallel to the x-axis, then find the equation of the tangent(s).

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[1] **Office hours:** Monday: 1:45-3:15pm, Tuesday:3:30-5:30pm, Wednesday 2:15-3:15pm