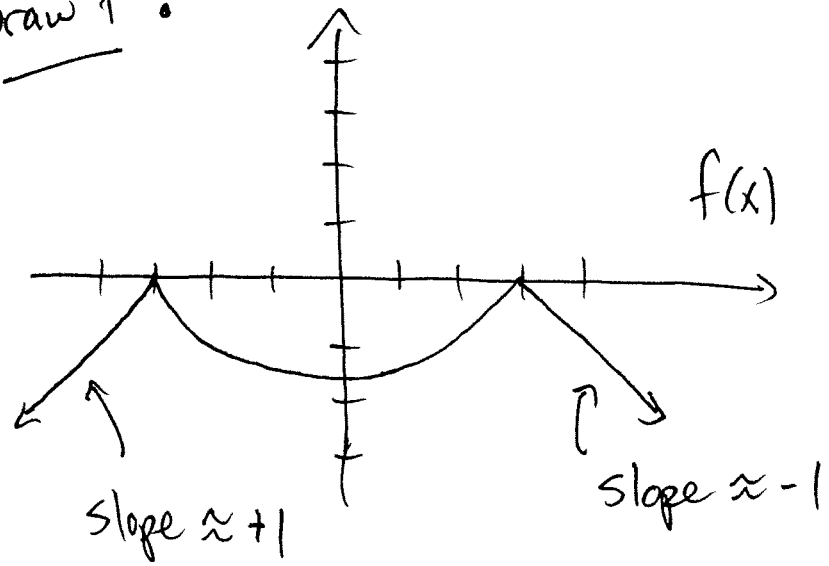
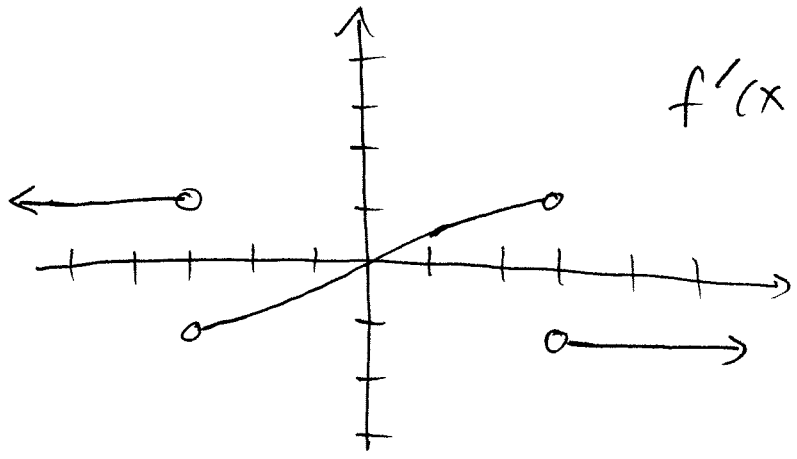
M 121 C Fall 2009 Hw 5

What got graded: §3.5 #10

§4.1 #32, §4.2 #8

3.5 #10 Draw f':





4.1 #32 Find the slope of the tangent line, and the equation of the tangent line, to the graph of $y = -3x^5 - 8x^3 + 4x^2$ at $x = 1$.

Soln:

$$\frac{dy}{dx} = -15x^4 - 24x^2 + 8x$$

At $x = 1$: slope $= -15 \cdot 1^4 - 24(1)^2 + 8 \cdot 1$

$$\text{slope} = -31$$

So the tangent line at the point

$$(1, -3 \cdot 1^5 - 8 \cdot 1^3 + 4 \cdot 1^2 = -7)$$

is

$$y + 7 = -31(x - 1)$$

4.2 (#8) $y = (2x-3)(\sqrt{x}-1)$.

Derivative $\frac{dy}{dx} = 2\cdot(\sqrt{x}-1) + (2x-3)\cdot\frac{1}{2}x^{-1/2}$