MATH 100 – WORKSHEET 8
IMPLICIT DIFFERENTIATION

(1) Direct problems

(a) Find line tangent to the curve $y^2 = 4x^3 + 2x$ at the point $(2, 6)$.

(b) Find y'' if $x^5 + y^5 = 10$.

(c) Find y' if $(x + y)\sin(xy) = x^2$.

Date: 2/10/2014.

(2) Combinations

(a) Find y' if $y = \arcsin\left(e^{5x}\right)$. What is the domain of the functions y, y'?

(b) Differentiate $y(x) = \sqrt{1 + (\arctan(x))^2}$.

(c) (Final 2012) Find the slope of the tangent line to the curve $y + x\cos y = \cos x$ at the point $(0, 1)$.