

MATH 100 – WORKSHEET 9
IMPLICIT DIFFERENTIATION

1. IMPLICIT DIFFERENTIATION

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

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

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

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

2. INVERSE TRIG FUNCTIONS

(1) (Evaluation)

(a) (Final 2014) Find $\arcsin\left(\sin\left(\frac{31\pi}{11}\right)\right)$.

(b) Find $\tan(\arccos(0.4))$

(2) Differentiation

(a) Find $\frac{d}{dx}(\arcsin(2x))$

(b) Find $\frac{d}{dx}\sqrt{1 + (\arctan(x))^2}$.

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