

MA1E01: Tutorial week 5

REMEMBER TO HAND BEFORE THE TUTORIAL STARTS

- Derivatives
- Implicit differentiation

Problem 1 *Complete:*

- $\frac{d}{dx} \sqrt{\sin x} =$
- $\frac{d}{dx} \sqrt{x^3 + 2x} =$
- $\frac{d}{dx} \sqrt{f(x)} =$
- $\frac{d}{dx} \sqrt{y(x)} =$

Problem 2 *Determine $\frac{dy}{dx}$ as a function of x and y for the following cases*

- $\sqrt{y} + y = 3$
- $\sqrt{y} + y = 3x$
- $\sqrt{y} + \sin y = 3x^4$

Problem 3 *Determine $\frac{dy}{dx}$ as a function of x and y in the case that*

$$\sqrt{\sin(\cos y) + x^2 \cos y} = y$$