

MA125-8B Quiz 1

Name: Key

Exercise 1. (5 points) Differentiate the function

$$f(x) = 5x^4 - 8x^3 + 2x^2 + 9x - 13.$$

$$\begin{aligned} f'(x) &= 5(4x^3) - 8(3x^2) + 2(2x) + 9(1) + 0 \\ &= 20x^3 - 24x^2 + 4x + 9 \end{aligned}$$

Exercise 2. (5 points) Differentiate the function

$$f(x) = x^2 \sin(x).$$

$$\begin{aligned} f'(x) &= x^2 \frac{d}{dx}(\sin(x)) + \sin(x) \frac{d}{dx}(x^2) \\ &= x^2 \cos(x) + 2x \sin(x) \end{aligned}$$