MAC 2311 Quiz 5 Lectures 11 - 12

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1. (5 pts) Calculate the derivative.

$$\frac{d}{dx}(2x^2 - \sqrt{5} + \frac{3}{\sqrt[3]{x^2}})$$

$$= \frac{d}{dx}\left(2x^2 - \sqrt{5} + 3x^{-\frac{2}{3}}\right)$$

$$= 4x - 0 + 3\left(-\frac{2}{3}\right)x^{-\frac{2}{3}-1}$$

$$= 4x - 2x^{-\frac{5}{3}}$$

$$= 4x - \frac{2}{\sqrt[3]{x^5}}$$

2. (5 pts) Calculate the derivative.

$$\frac{d}{dx}(e^x) = e^x$$

$$\frac{d}{dx}(x^2+1) = 2x$$

$$\frac{d}{dx}(\frac{e^x}{x^2+1})$$

$$= \frac{(x^2+1)(e^x) - (e^x)(2x)}{(x^2+1)^2}$$

$$= \frac{e^x(x^2-2x+1)}{(x^2+1)^2}$$

$$= \frac{e^x(x-1)^2}{(x^2+1)^2}$$