Worksheet 3

SI with Ian

Week of February 17th

Feel free to use notes and other resources, however, please do not use online calculators. Also if you are printing this worksheet out before hand (thank you) please wait to complete the worksheet until the SI session.

To start: Start making a cheat sheet, something that includes all relevant formulas that we encounter throughout the year. We'll do this together, but you've probably noticed that within the last week or so we've learned a lot of new formulas so this will be good for the future.

1. Compute the following using the formal definition of a derivative $\left(\lim\limits_{h \to 0} f(x) = \dfrac{f(x+h) - f(x)}{h} \right)$:

$$f(x) = 6x^3 - 9x + 4$$

2. Find the derivative of the function $y = ae^v + \dfrac{b}{v} + \dfrac{c}{v^2}$

3. Let $G(a) = 4x^2 - x^3$, find $G'(a)$ and use it to find the equation of the tangent line to the curve $y = 4x^2 - x^3$ at point (3,9)

4. Find the derivative of the function $f(x) = \dfrac{\sqrt{x} + x}{x^2}$