Assignment 0

Your Name

The goal of this assignment is to reproduce this *exact* PDF (minus these instructions and the hints, and with the title changed appropriately to your name). Your starting point is the template file found on canvas. Start by downloading that, then open it in your IDE of choice (for most if not all of you, this will mean copying and pasting the contents into a new file in Overleaf) and fill it in, in order to create the math that you see below. All of this math can be recreated using the tutorial document that I wrote, also found on canvas. However, plenty of online resources also exist. Unlike other assignments, the file you will be turning in is the .tex file on Canvas. Graders will compile the file themselves to verify that it creates the required math. **Again, only submit the .tex file on Canvas. Do not submit the pdf.**

1. By the chain rule from calculus, we have:

$$\frac{d}{dx}\sin(x^2+6x) = \cos(x^2+6x)\frac{d}{dx}(x^2+6x) \tag{1}$$
$$= \cos(x^2+6x)(2x+6) \tag{2}$$

2. DeMorgan's law says

$$\neg(A \cap B) \equiv \neg A \cup \neg B \tag{3}$$

3.

A	B	$A \wedge B$
T	T	T
T	F	F
F	T	F
F	F	F

4. $\mathbb{R}$ denotes the real numbers. $\mathbb{N}$ denotes the natural numbers. It is of course the case that $\mathbb{N} \subseteq \mathbb{R}$.

Hints

- On problem 1, you should be using an align environment. Check the tutorial document for more.
- An align environment would also work for problem 2, but for one line math demos it would be more appropriate to use an equation environment. Make sure to check the tutorial document for a link to a handy page where you can look up the commands for all sorts of symbols.