

Assignment 0

Robert Vollbrecht

January 13, 2026

Here is where I would disclose anything that the graders and/or professor should know about, such as outside resources used or classmates who I worked with.

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

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

$$= \cos(x^2 + 6x) + (2x + 6) \quad (2)$$

2. DeMorgan's law says

$$\neg(A \cap B) \equiv \neg A \cup \neg B \quad (3)$$

- 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 $\mathbb{N} \subseteq \mathbb{R}$.