

# Assignment 0

Hanson Pan

January 20, 2026

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