Reading. Section 1.8 from *Calculus: One and Several Variables.*

Problem 1.1. Section 1.8, Exercise 1.

Theorem 1.2. *If it is raining, then the ground is wet.*

Problem 1.3. Given Theorem 1.2,

1. Write the negation of 1.2. Is it true?

2. Write the converse of 1.2. is it true?

3. Write the contrapositive of 1.2. Is it true?

Theorem 1.4. *A number is even if and only if it is divisible by 2.*

Problem 1.5. Given Theorem 1.4,

1. Are *being even* and *being divisible by 2* equivalent?

2. In general, given *A if and only if B*, are A and B equivalent?

Problem 1.6 (Bonus)**.** Using induction, show that

$$1 + 2 + \cdots + n = \frac{n(n+1)}{2}$$

Make sure to specify the **Base case**, **Inductive step**, and **Conclusion**.