**Fall 2023, Math 320: Preliminary Problem Set 2**
**Due: Thursday, September 7th, 2023**
**Primes and Unique Factorization**

**Preliminary problems.** These problems should be completed before discussion on Thursday.

(P1) Write the complete mathematical definition for "$p \in \mathbb{Z}_{\geq 2}$ is prime", as well as one mathematically equivalent statement from Monday's lecture.

(P2) Find the prime factorizations of 60 and 126 *without* using a calculator.

(P3) Find as many factorizations of 60 as you can, *including* those we usually consider "the same" (e.g. 12 would have three, namely $12 = 2 \cdot 2 \cdot 3$, $12 = 2 \cdot 3 \cdot 2$, and $12 = 3 \cdot 2 \cdot 2$).