

**Fall 2023, Math 320: Preliminary Problem Set 1**  
**Due: Thursday, August 31st, 2023**  
**The Division Algorithm and Greatest Common Divisors**

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

(P1) Write a complete mathematical definition of  $\gcd(a, b)$ .

(P2) Find  $q, r \in \mathbb{Z}$  so that

$$105 = 11q + r$$

with  $0 \leq r < 11$ , as in the division algorithm.