**Fall 2021, Math 620: Preliminary Problem Set 9**
**Due: Thursday, October 21st, 2021**
**A Hierarchy of Integral Domains**

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

(P1) Use the Euclidean algorithm to find $\gcd(559, 234)$.

(P2) Perform the following polynomial long division.

$$x^2 + x + 2 \enclose{longdiv}{x^5 \quad\quad + 2x^3 \quad\quad + 2x + 1}$$