**Fall 2021, Math 620: Preliminary Problem Set 7**
**Due: Thursday, October 7th, 2021**
**Quotient Rings**

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

(P1) List all 9 elements of $\mathbb{Z}_3[x]/\langle x^2 - 1 \rangle$, with no repetition.

(P2) Determine which element above equals $[x^4 + x + 1][x^5 + 2x^4 + 2]$ in $\mathbb{Z}_3[x]/\langle x^2 - 1 \rangle$.