

Spring 2021, Math 522: Preliminary Problem Set 4
Due: Thursday, February 18th, 2021
Modular Arithmetic

Preliminary problems. These should be submitted to Gradescope before Thursday discussion.

(P1) For each nonzero element $[a]_{12} \in \mathbb{Z}_{12}$, find the number of times $[a]_{12}$ must be added to itself to obtain $[0]_{12}$. For example, since

$$[3]_{12} + [3]_{12} + [3]_{12} + [3]_{12} = [0]_{12},$$

we conclude $[3]_{12}$ must be added to itself 4 times to obtain $[0]_{12}$.