Fall 2026, Math 296: Week 12 Preliminary Problems
Due: Thursday, November 12th, 2026
Relations

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

(P1) There are 2 different relations on the set $A = \{1\}$. Find both of them.

(P2) Consider the relation

$$R = \{(a, b) \in \mathbb{Z} \times \mathbb{Z} : a^2 = b\}$$

on $\mathbb{Z}$. Find the set of all a such that $aR4$.

(P3) Consider the relation

$$R = \{(a, b) \in \mathbb{Z} \times \mathbb{Z} : a \leq b\}$$

on $\mathbb{Z}$. Find the set of all a such that $aR4$ (you may want to use list-builder notation).