**Fall 2026, Math 296: Week 8 Preliminary Problems**
**Due: Thursday, October 15th, 2026**
**Sets**

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

(P1) Consider the following sets.

$$A = \{2, 5, 7, 9\} \qquad B = \{2, 3, 4, 5, 6\} \qquad C = \{1, 3, 7, 9\}$$

Write each of the following in list notation, and find their cardinality.

(a) $A \times C$

(b) $(B \times C) \setminus (A \times A)$

(c) $(A \times B \times C) \setminus \{(a, b, c) \in \mathbb{Z} \times \mathbb{Z} \times \mathbb{Z} : a \neq b \text{ and } b \neq c\}$