

This miniproject asks you to work with the concept of partitions and refinements of partitions. A refinement of a partition is defined just prior to #49 of Section 8.5.

- (a) Show that the partition formed from congruence classes modulo 8 is a refinement of the partition formed from congruence classes modulo 2.
- (b) Consider a relation on the set $\{a, b, c, d\}$. Is there a relation whose partition does not have a further refinement? If so, give an example. If not, explain why not.
- (c) List all of the partitions of $\{a\}$.
- (d) List all of the partitions of $\{a, b\}$.
- (e) List all of the partitions of $\{a, b, c\}$.
- (f) List all of the partitions of $\{a, b, c, d\}$.