

## Worksheet: Partitions.

The problems below marked “fundamental” consist of material for which you will be held responsible on the final. You will not be held responsible for material found exclusively in the problems marked “challenging.”

- (1) Read Section 2.9 from page 87 to page 95.
- (2) (10 points) Do **one** of the following problems:  
Fundamental: page 99 #1.  
Challenging: page 99 #5.
- (3) (10 points) Do **one** of the following problems:  
Fundamental: page 99 #2.  
Challenging: page 99 #4. Write your proof referring directly to the definition of a partition.
- (4) Not to turn in: page 99 #3.
- (5) (10 points) Prove that the relation  $R = \{(x, y) \mid 2 \mid (x - y)\}$  on  $\mathbb{Z}$  is an equivalence relation.