

**Math 504 Set Theory I**  
Problem Set 6

**Due Wednesday March 19**

1) a) Suppose  $\kappa$  and  $\lambda$  are regular cardinals with  $\aleph_0 \leq \lambda < \kappa$ . Prove that

$$S_\lambda = \{\alpha < \kappa : \text{cf}(\alpha) = \lambda\}$$

is stationary.

b) Suppose  $\kappa$  is weakly inaccessible. Prove that

$$\{S_\lambda : \aleph_0 \leq \lambda < \kappa, \lambda \text{ regular}\}$$

is a family of  $\kappa$  disjoint stationary subsets of  $\kappa$ .

2) Suppose  $\kappa$  is weakly inaccessible. Prove that

$$\{\lambda < \kappa : \lambda = \aleph_\lambda\}$$

is closed unbounded.