

## Probabilistic Methods

### Homework #3

Due: *Thursday, November 7th*

#### **Problem 4**

Let  $\mathcal{F}$  be a family of 3-elements subsets of the set  $\{1, 2, \dots, n\}$  such that  $|\mathcal{F}| = m \geq n$ . Prove that there exists a set  $S \subseteq \{1, 2, \dots, n\}$  which contains no subsets from  $\mathcal{F}$  such that  $|S| \geq \frac{n^{3/2}}{3\sqrt{m}}$ .