# MA 614 – Homework 15
## Due Fri May 1

Your answers should be detailed explanations in quality mathematical English. You must type your homework in LaTeX.

1. Suppose that $L$ is a finite lattice with three atoms. What are the possible values of $\mu(\hat{0}, \hat{1})$?

2. Prove that for a finite, graded poset $P$ with rank function $\rho : P \to \{0, 1, \ldots, n\}$, $\beta_P(S) = 0$ if $S \nsubseteq \{1, 2, \ldots, n-1\}$, i.e. if $0$ or $n$ is in $S$.

3. Let $P$ be a $p$-element poset, and let $S \subseteq [p-1]$ satisfy $\beta_{J(P)}(S) \neq 0$. Show that if $T \subseteq S$, then $\beta_{J(P)}(T) \neq 0$.