**PROBLEM SET # 9**
**MATH 249**

Due October 7.

**1**. Find explicit formulae for the quasi polynomials $\bar{p}_3(n)$ and $\bar{p}_4(n)$.

**2**. Bus tickets in Moscow always have six digit numbers. A ticket is lucky if the sum of the first 3 digits equals the sum of the last 3 digits. Find the number of lucky tickets.

**3**. Let $C$ be a pointed convex polyhedral cone, $\Gamma$ and $\Gamma'$ be triangulations of $C$ whose extreme rays are the same as the extreme rays of $C$. Let $\gamma_k$ be the number of faces of $\Gamma$ of degree $k$. Is it always true that $\gamma_k = \gamma'_k$?

*Date*: October 31, 2006.