

**MATH603**

Fall 2015

extra credit problems

1. **given on:** September 24, 2015 (5 pt) **solved by:** Xiaowei Song on September 29, 2015

Let  $\varphi(z) = \log \left( \sum_{i=1}^k e^{-z_i} \right)$ . Show that  $\varphi$  is a convex function.