

**Quiz 2**  
**STAT 479**  
**September 9, 2010**

1. Dental claims during a year are distributed as a 2 point mixture distribution with a weight of 70% for Distribution 1 and 30% for Distribution 2.

Distribution 1 is a Pareto distribution with  $\alpha = 3$  and  $\theta = 400$

Distribution 2 is a Gamma distribution with  $\alpha = 2$  and  $\theta = 2000$ .

An insurance company has 2000 independent dental policies which pay 100% of all claims.

Using the normal approximation, estimate the probability that total claims will exceed 2.7 million.

2. Cancer claims follow an exponential distribution with parameter  $\theta$ .

$$\text{VaR}_{0.75}(X) = 170.5142$$

Calculate  $k$  so that the standard deviation principle is equal to  $\text{TVaR}_{0.75}(X)$ .