

Stat 479
Fall 2009
Quiz 10
December 3, 2009

1. You have the following sample from a distribution:

6, 6, 8, 10, 10, 10, 14, 14, 16, 19

θ_M is the estimated parameter for an exponential distribution using the Method of Moments.

θ_P is the estimated parameter for an exponential distribution using the Method of Percentile Matching using the 60th percentile.

Calculate $1000(\theta_P - \theta_M)$.

2. One hundred laptop computers are observed for a period of 12 months. Thirty laptops malfunction during the observation period, with the following distribution:

Time Till Malfunction in Months	Number of Malfunctions
1	8
2	6
3	0
4	0
5	1
6	0
7	1
8	2
9	2
10	3
11	3
12	4

The remaining seventy laptops are still functioning at the end of 12 months.

The lifetime of a laptop is believed to follow an exponential survival function with mean of θ .

Calculate the maximum likelihood estimate of θ .