

Chapter 15

Exercise 15.10 The proof sketch described in the text should have noted that np is assumed to be something other than an integer. In the case where np is an integer, following the discussion in the text, one can see that the the quantile regression objective function will reach a minimum over the interval defined as $[y_{(np)}, y_{(np+1)}]$.

As an example of this, we simply generated 10 observations randomly from the $U(0, 1)$ distribution and plotted the quantile objective function over the interval $[-.5, 1.5]$ with $p = .5$. A plot of the objective function is provided in the graph below. In our particular data set, $y_{(5)} \approx .4$ and $y_{(6)} \approx .77$. The objective function is flat between these points.

