HW 1 MSF100 , Due Wed Feb 10.

Question 1

For $X_i, i = 1, \cdots, n$ uniform on $[-\theta, \theta]$, $\theta > 0$
what is the MLE?
Show that the MLE is consistent.

Question 2

For a scale-family we have that the density is $p_\theta(x) = \frac{1}{\theta} f(\frac{x}{\theta})$ for some density function f.
Show that the expected Fisher Information $FI(\theta) = constant/\theta^2$.

Question 3

Let X be distributed $Be(\theta)$ (single draw). Let the model family considered consist of only two members, $\theta = 1/3$ and $\theta = 2/3$. Find the MLE.