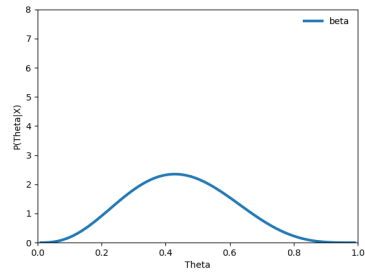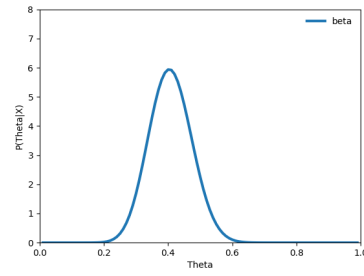We see that as the number of observations increases, the value of $P(\theta|X)$ converges to the correct value of 0.4. When the number of observations become infinity, the graph would look like the delta function at $\theta = 0.4$

(a) 2 heads out of 5   (b) 20 heads out of 50

Figure 1: PDF of $P(\theta|X)$