

WEEKLY PARTICIPATION 3

Let $U \sim \text{Unif}[0, 2\pi]$ and $X = \cos(u)$. Determine the range of values of X , and its pdf.

You cannot directly use the transformation of variables result as given in class, because \cos is not invertible on the interval $[0, 2\pi]$. However, note that it is invertible on the two intervals $[0, \pi]$ and $[\pi, 2\pi]$. Use a similar argument to the one we gave in class to find the pdf.