1. If $X$ is an exponential ($\lambda$) random variable, find $E(X)$; $E(X^2)$ and $\text{Var}(X)$.

2. Find $P(3 < X < 5)$ where $X$ is same as above.

3. Find the moment generating function of $X$ if $X$ has uniform (continuous) distribution on interval $[0,1]$. 