PROBABILITY AND STATISTICS – PROBLEM SET 8

1. Compute the moment generating function of the discrete random variable X with pmf $f(x) = \dfrac{1}{2^x}$, $x = 1, 2, \ldots$.

2. If $0 < p < 1$ and $q = 1 - p$, find the mgf of the random variable X with pmf $f(x) = p^{x-1}q$, $x = 1, 2, \ldots$, and hence find $E[X]$ and $V[X]$.