

1. Suppose that $X \sim \mathcal{G}(p)$ (geometric random variable with parameter p), compute $M_X(t)$. Use this to find $E(X)$.
2. Suppose that $U \sim \mathcal{U}(a, b)$ (uniform random variable on the interval $[a, b]$), compute $M_U(t)$. Use this to find $E(X)$.