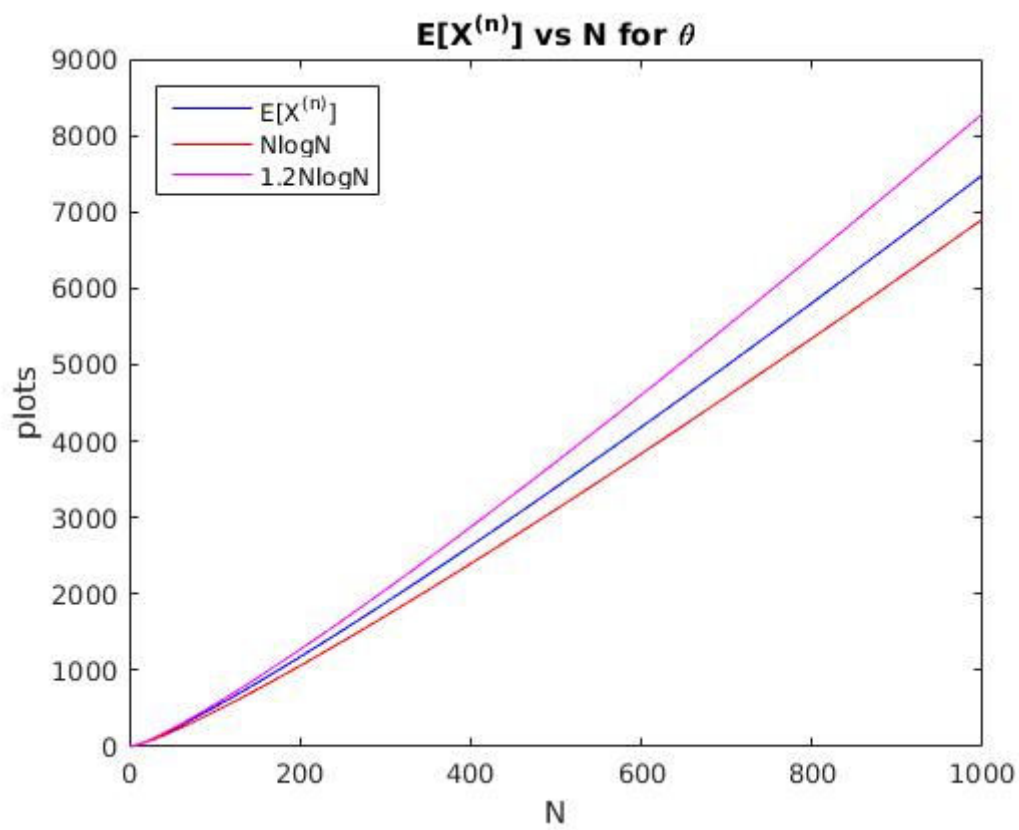


Plot $E[X^{(n)}]$ vs n :



Hence, $E[X^{(n)}] = \Theta(n \log(n))$