

X is a discrete random variable which takes the values $0, 2, 4, \dots$. The probability generating function of X is given by

$$G_X(t) = \frac{1}{3-2t^2}.$$

(a) Find $E(X)$ and $\text{Var}(X)$. [5]

(b) Find $P(X = 4)$. [3]