Unit 4 Pre-Class Warm-up

w203 Instructional Team

The 'Pyramid' Distribution

Suppose that X is a continuous random variable with the following PDF.

$$f_X(x) = \begin{cases} x, & 0 \leq x < 1 \\ 2 - x, & 1 \leq x < 2 \\ 0, & \text{otherwise} \end{cases}$$

a. Find the cumulative density function of X, F_X, and plot it.

b. Compute $E(X)$

c. Compute $var(X)$

d. Suppose $Y(X) = X^2$. Explain why Y is also a random variable.

e. Compute $E(Y)$