

The discrete random variable x has the shown probability distribution.

x	1	2	3	4
$P(x)$	$\frac{12}{25}$	$\frac{6}{25}$	$\frac{4}{25}$	$\frac{3}{25}$

$$\sum P(X=x) = 1$$

Find the value of k .

$$k = \frac{12}{25}$$

Hence, determine the expected value of x .

$$E(X) = \frac{48}{25}$$

$$E(X) = \sum x P(X=x)$$

$$\begin{aligned} E(X) &= \left(1 \times \frac{12}{25}\right) + \left(2 \times \frac{6}{25}\right) + \left(3 \times \frac{4}{25}\right) + \left(4 \times \frac{3}{25}\right) \\ &= \frac{12}{25} + \frac{12}{25} + \frac{12}{25} + \frac{12}{25} = \frac{48}{25} \end{aligned}$$