

A random sample of 50 observations of the continuous random variable X was taken and the values are summarised in the following table.

Interval	$0 \leq x < 0.8$	$0.8 \leq x < 1.6$	$1.6 \leq x < 2.4$	$2.4 \leq x < 3.2$	$3.2 \leq x < 4$
Observed frequency	18	16	8	6	2

It is required to test the goodness of fit of the distribution with probability density function f given by

$$f(x) = \begin{cases} \frac{3}{16}(4-x)^{\frac{1}{2}} & 0 \leq x < 4, \\ 0 & \text{otherwise.} \end{cases}$$

The relevant expected frequencies, correct to 2 decimal places, are given in the following table.

Interval	$0 \leq x < 0.8$	$0.8 \leq x < 1.6$	$1.6 \leq x < 2.4$	$2.4 \leq x < 3.2$	$3.2 \leq x < 4$
Expected frequency	14.22	12.54	10.59	8.18	4.47

(i) Show how the expected frequency for $1.6 \leq x < 2.4$ is obtained. [3]

(ii) Carry out a goodness of fit test at the 5% significance level. [7]