1. The independent random variables W and X have the following distributions.

$$W \sim \text{Po}(4) \qquad X \sim \text{B}(3, 0.8)$$

(a) Write down the value of the variance of W

(1)

(b) Determine the mode of X
Show your working clearly.

(2)

One observation from each distribution is recorded as W_1 and X_1 respectively.

(c) Find $\text{P}(W_1 = 2 \text{ and } X_1 = 2)$

(3)

(d) Find $\text{P}(X_1 < W_1)$

(4)

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(Total for Question 1 is 10 marks)

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