

2. June/2023/Paper_9709/62/No.2(a)

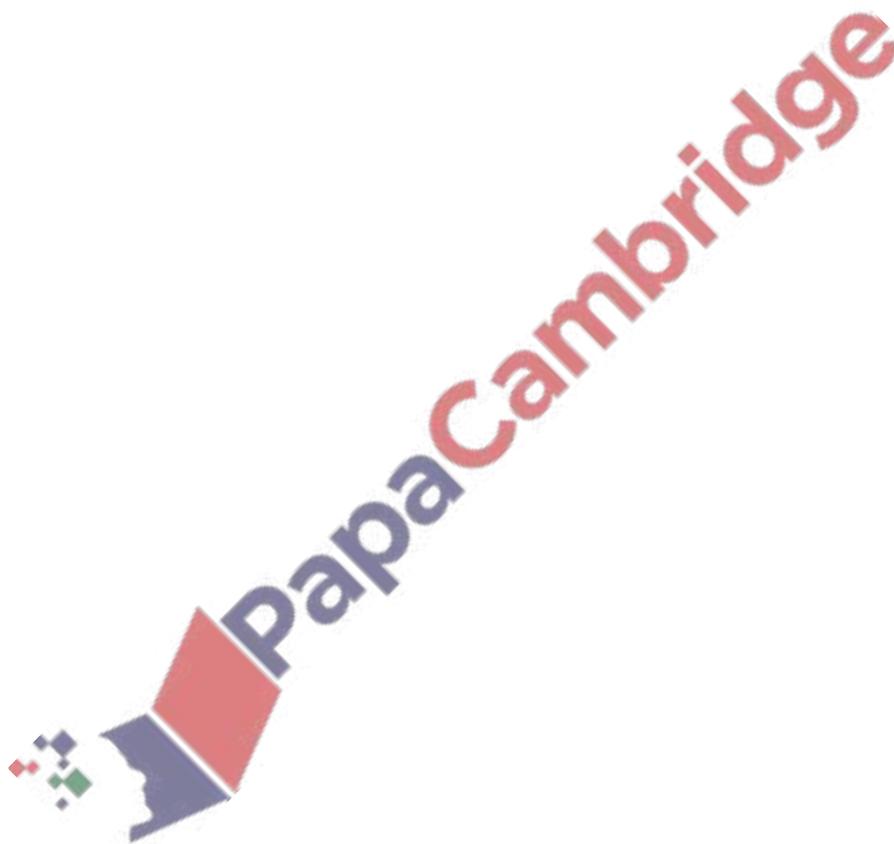
(a) The random variable W has a Poisson distribution.

State the relationship between $E(W)$ and $\text{Var}(W)$.

[1]

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The number, X , of books received at a charity shop has a constant mean of 5.1 per day.

- (a) State, in context, one condition for X to be modelled by a Poisson distribution. [1]

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Assume now that X can be modelled by a Poisson distribution.

- (b) Find the probability that exactly 10 books are received in a 3-day period. [2]

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- (c) Use a suitable approximating distribution to find the probability that more than 180 books are received in a 30-day period. [4]

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