AQA

Statistics 2

分类真题

2019-2022 册

A Level Clouds 出品

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Chapter 1

Poisson Distribution

3   Matthew is shooting arrows at a target.

The number of arrows hitting the target can be modelled by a binomial distribution with

n = 100 and p = 0.01

3 (a)   Using a Poisson distribution as an approximation, estimate the probability that more than 3 arrows hit the target, giving your answer to three decimal places.

[3 marks]

Answer _____

3 (b)   State under what conditions the Poisson distribution is considered to be a good approximation to the binomial distribution.

[2 marks]

2

4   Let X represent the number of people arriving at a hospital with a particular disease in a day.

A random sample of 20 days is taken. The summarised data is

$$\sum x = 50 \qquad \text{and} \qquad \sum x^2 = 173$$

4 (a)   Using the summarised data, explain why it would be reasonable to model X using a Poisson distribution.

[4 marks]

4 (b)   Using a Poisson model with mean 2.5, find $P(X = 4)$, giving your answer to three significant figures.

[2 marks]

Answer _____