











Leave blank

4. (a) State the condition under which the normal distribution may be used as an approximation to the Poisson distribution. **(1)**

(b) Explain why a continuity correction must be incorporated when using the normal distribution as an approximation to the Poisson distribution. **(1)**

A company has yachts that can only be hired for a week at a time. All hiring starts on a Saturday.  
During the winter the mean number of yachts hired per week is 5.

(c) Calculate the probability that fewer than 3 yachts are hired on a particular Saturday in winter. **(2)**

During the summer the mean number of yachts hired per week increases to 25.  
The company has only 30 yachts for hire.

(d) Using a suitable approximation find the probability that the demand for yachts cannot be met on a particular Saturday in the summer. **(6)**

In the summer there are 16 Saturdays on which a yacht can be hired.

(e) Estimate the number of Saturdays in the summer that the company will not be able to meet the demand for yachts. **(2)**

Horizontal lines for writing answers.

















