

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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- (2)

- $$f(t) = \begin{cases} kt & 0 \leq t \leq 10 \\ 0 & \text{otherwise} \end{cases}$$

- (d) Write down the mode of the distribution of T . **(1)**

(e) Sketch the graph of a more suitable probability density function for T . (1)



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6. A web server is visited on weekdays, at a rate of 7 visits per minute. In a random one minute on a Saturday the web server is visited 10 times.

(a) (i) Test, at the 10% level of significance, whether or not there is evidence that the rate of visits is greater on a Saturday than on weekdays. State your hypotheses clearly.

(ii) State the minimum number of visits required to obtain a significant result. (7)

(b) State an assumption that has been made about the visits to the server. (1)

In a random two minute period on a Saturday the web server is visited 20 times.

(c) Using a suitable approximation, test at the 10% level of significance, whether or not the rate of visits is greater on a Saturday. (6)

[illegible]

$$f(x) = \begin{cases} -\frac{2}{9}x + \frac{8}{9} & 1 \leq x \leq 4 \\ 0 & \text{otherwise} \end{cases}$$

- (3)

- (2)

- (6)

(2)

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