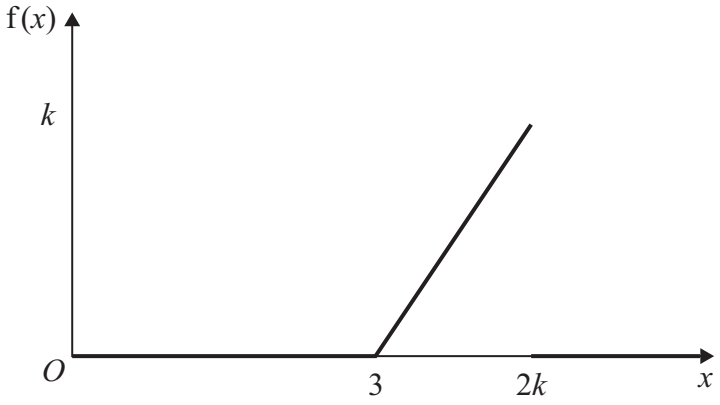
7. The probability density function of the continuous random variable X is shown in the graph below, where k is a constant.



(a) Show that $k = 2$

(2)

(b) State the mode of X

(1)

(c) Specify fully the probability density function of X

(3)

Given that $\mathrm{E}(X) = \frac{11}{3}$

(d) find the exact value of $\mathrm{Var}(X)$
(*Solutions relying entirely on calculator technology are not acceptable.*)

(5)

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Question 7 continued

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Question 7 continued

Question 7 continued

(Total for Question 7 is 11 marks)

TOTAL FOR PAPER IS 75 MARKS

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