7. Adana selects one number at random from the distribution of X which has the following probability distribution.

x	0	5	10
$P(X = x)$	0.1	0.2	0.7

(a) Given that the number selected by Adana is not 5, write down the probability it is 0

(1)

(b) Show that $E(X^2) = 75$

(1)

(c) Find $Var(X)$

(3)

(d) Find $Var(4 - 3X)$

(2)

Bruno and Charlie each independently select one number at random from the distribution of X

(e) Find the probability that the number Bruno selects is greater than the number Charlie selects.

(3)

Devika multiplies Bruno's number by Charlie's number to obtain a product, D

(f) Determine the probability distribution of D

(4)

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Question 7 continued

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Question 7 continued

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(Total for Question 7 is 14 marks)

TOTAL FOR PAPER: 75 MARKS

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