6 A particular lift has a maximum load capacity of 700 kg.

The weights of men are normally distributed with mean 80 kg and standard deviation 10 kg.

The weights of women are normally distributed with mean 69 kg and standard deviation 5 kg.

You may assume that weights of people are independent.

(a) Find the probability that when 6 men and 3 women are in the lift, the load exceeds 700 kg.

(4)

A sign in the lift states: "Maximum number of people in the lift is c"

(b) Find the value of c such that the probability of the load exceeding 700 kg is less than 2.5% no matter the gender of the occupants.

(6)

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(Total for Question 6 is 10 marks)

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