Leave blank

2. The continuous random variable X is uniformly distributed over the interval $[-3, 12]$

(a) Find the upper quartile of X.

(2)

(b) Find $P(5 \leqslant X < 14)$

(2)

The continuous random variable Y is uniformly distributed over the interval $[a, b]$ where $0 < a < b$

Given that $E(X) = E(Y - 3)$ and $Var(X) = 4Var(Y)$

(c) find the value of a and the value of b.

(5)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Leave blank

Question 2 continued

Q2

(Total 9 marks)