5 (a) Show that $(\alpha + \beta)(\alpha^2 - \alpha\beta + \beta^2) = \alpha^3 + \beta^3$

(1)

The roots of the equation $2x^2 + 6x - 7 = 0$ are α and β where $\alpha > \beta$

Without solving the equation,

(b) find the value of $\alpha^3 + \beta^3$

(4)

(c) show that $\alpha - \beta = \sqrt{23}$

(2)

(d) Hence find the exact value of $\alpha^3 - \beta^3$

(2)

Question 5 continued

Question 5 continued

Question 5 continued

(Total for Question 5 is 9 marks)