8 The roots of the equation $3x^2 - 2x - 1 = 0$ are α and β, where $\alpha > \beta$

Without solving the equation,

(a) find the value of $\alpha^2 + \beta^2$

(3)

(b) show that $\alpha - \beta = \frac{4}{3}$

(2)

(c) form a quadratic equation, with integer coefficients, that has roots $\frac{\alpha + \beta}{\alpha}$ and $\frac{\alpha - \beta}{\beta}$

(6)

Question 8 continued

Question 8 continued

Question 8 continued

(Total for Question 8 is 11 marks)