10 The quadratic equation $2x^2 + kx + 4 = 0$ has roots α and β such that

$$k < 0 \text{ and } \alpha > \beta$$

Given that $\alpha^2 - \beta^2 = \dfrac{7\sqrt{17}}{4}$

(a) show that $k = -7$

(8)

(b) Hence form a quadratic equation that has roots

$$(\alpha - \beta) \text{ and } (\alpha + \beta)$$

(4)

Question 10 continued

Question 10 continued

Question 10 continued

(Total for Question 10 is 12 marks)