8 (a) Using the binomial expansion, or otherwise, find the complete expansion of

$$(x + y)^3$$

(1)

The quadratic equation

$$2x^2 + 3x + 4 = 0$$

has roots α and β

(b) Without solving the equation, find the value of

$$\alpha^3 + \beta^3$$

(4)

(c) Hence, form a quadratic equation with integer coefficients that has roots

$$\frac{\alpha}{\beta^2} \text{ and } \frac{\beta}{\alpha^2}$$

(5)

Question 8 continued

Question 8 continued

Question 8 continued

(Total for Question 8 is 10 marks)