

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

$$(x + y)^3 \quad (1)$$

The quadratic equation

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

has roots α and β

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

$$\alpha^3 + \beta^3 \quad (4)$$

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

$$\frac{\alpha}{\beta^2} \text{ and } \frac{\beta}{\alpha^2} \quad (5)$$

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(Total for Question 8 is 10 marks)