- **9** The equation  $3x^2 4x + 6 = 0$  has roots  $\alpha$  and  $\beta$ .
  - (a) Without solving the equation, write down
    - (i) the value of  $\alpha + \beta$
    - (ii) the value of  $\alpha\beta$

(2)

(b) Without solving the equation, show that  $\alpha^3 + \beta^3 = -\frac{152}{27}$ 

- (3)
- (c) Form a quadratic equation, with integer coefficients, that has roots  $\frac{\alpha}{\beta^2}$  and  $\frac{\beta}{\alpha^2}$

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Question 9 continued
(Total for Question 9 is 10 marks)

