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6. It is given that α and β are roots of the equation

$$12x^2 - 3x + 4 = 0$$

Without solving the equation,

(a) find the exact value of $\frac{2}{\alpha} + \frac{2}{\beta}$

(3)

(b) find a quadratic equation that has roots $\frac{2}{\alpha} - \beta$ and $\frac{2}{\beta} - \alpha$ giving your answer in the form $ax^2 + bx + c = 0$, where a, b and c are integers to be found.

(6)

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(Total 9 marks)