6. **In this question you must show all stages of your working.**
Solutions relying on calculator technology are not acceptable.

The curve C_1 has equation $y = (x + 5)(3x + 2)(2x - 5)$

The curve C_2 has equation $y = 3x^2 - 33x - 50$

Use algebra to find the x coordinates of the points of intersection of C_1 and C_2

(5)

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Question 6 continued

(Total for Question 6 is 5 marks)

7. **In this question you must show all stages of your working.**
Solutions relying entirely on calculator technology are not acceptable.

(a) Sketch the curve C with equation

$$y = \frac{1}{x + 6}$$

State on your sketch

- the equation of the vertical asymptote
- the coordinates of the point of intersection of C with the y-axis

(3)

The straight line l has equation $y = mx - 4$, where m is a constant.

Given that l cuts C at least once,

(b) (i) show that

$$9m^2 + 13m + 4 \geqslant 0$$

(ii) find the range of values of m.

(6)

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