3 Curve C has equation $y = \dfrac{ax + 3}{1 - 2x}$ where $x \neq \dfrac{1}{2}$ and a is a constant.

The asymptote to C that is parallel to the x-axis has equation $y = 4$

(a) Find the value of a

(2)

(b) Write down the equation of the asymptote to C that is parallel to the y-axis.

(1)

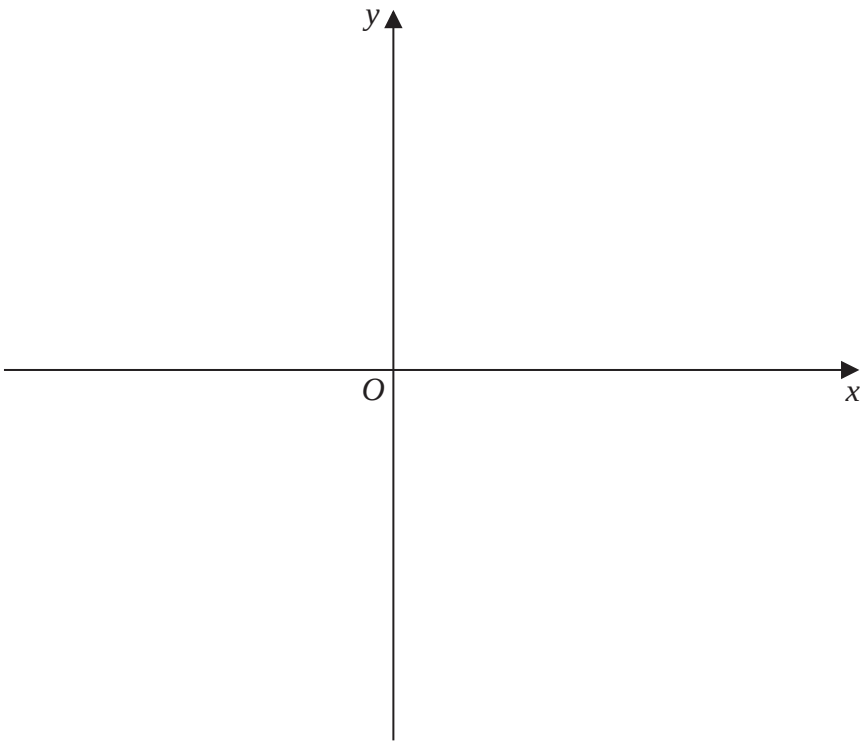
(c) Find the coordinates of the point where C crosses

(i) the x-axis, (ii) the y-axis.

(2)

(d) Using the axes below, sketch C, showing clearly the asymptotes and the coordinates of the points where C crosses the coordinate axes.

(4)



Question 3 continued

(Total for Question 3 is 9 marks)