7 The curve C with equation $y = \dfrac{2x-3}{x-3}$, $x \neq 3$, crosses the x-axis at the point A and the y-axis at the point B.

(a) Find the coordinates of A and the coordinates of B.

(2)

(b) Write down an equation of the asymptote to C which is

(i) parallel to the y-axis,

(ii) parallel to the x-axis.

(2)

(c) Sketch C showing clearly the asymptotes and the coordinates of the points A and B.

(3)

(d) Find an equation of the normal to C at the point B.

(5)

The normal to C at the point B crosses the curve again at the point D.

(e) Find the x-coordinate of D.

(4)

Question 7 continued

Question 7 continued

Question 7 continued

(Total for Question 7 is 16 marks)