

1. Factorise completely $x - 4x^3$

(3)

Q1

(Total 3 marks)



2. Express 8^{2x+3} in the form 2^y , stating y in terms of x .

(2)

Q2

(Total 2 marks)





6.

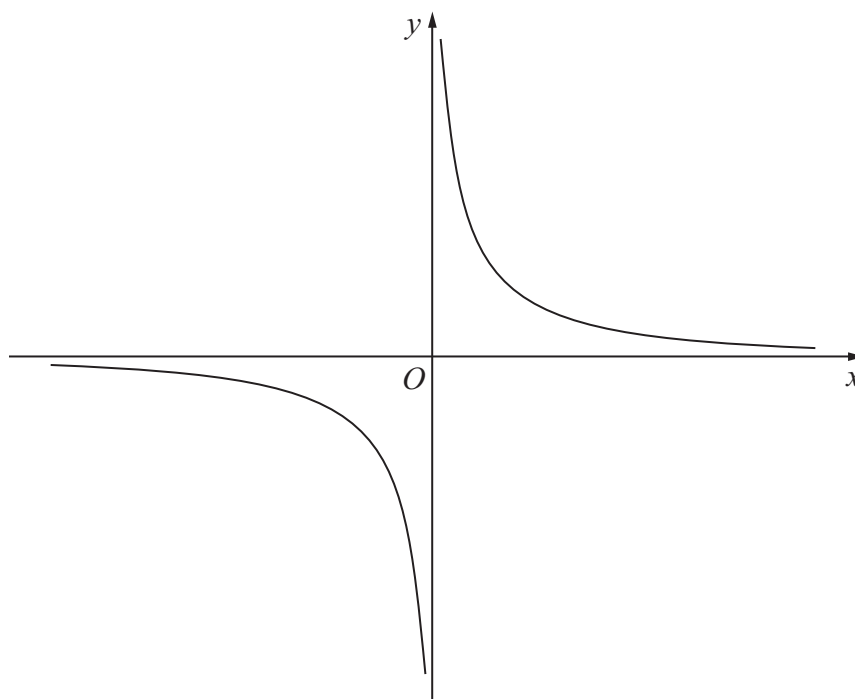


Figure 1

Figure 1 shows a sketch of the curve with equation $y = \frac{2}{x}$, $x \neq 0$

The curve C has equation $y = \frac{2}{x} - 5$, $x \neq 0$, and the line l has equation $y = 4x + 2$

- (a) Sketch and clearly label the graphs of C and l on a single diagram.

On your diagram, show clearly the coordinates of the points where C and l cross the coordinate axes.

(5)

- (b) Write down the equations of the asymptotes of the curve C .

(2)

- (c) Find the coordinates of the points of intersection of $y = \frac{2}{x} - 5$ and $y = 4x + 2$

(5)



Question 6 continued







8.

$$\frac{dy}{dx} = -x^3 + \frac{4x-5}{2x^3}, \quad x \neq 0$$

Given that $y = 7$ at $x = 1$, find y in terms of x , giving each term in its simplest form.

(6)





$$4x^2 + 8x + 3 \equiv a(x + b)^2 + c$$

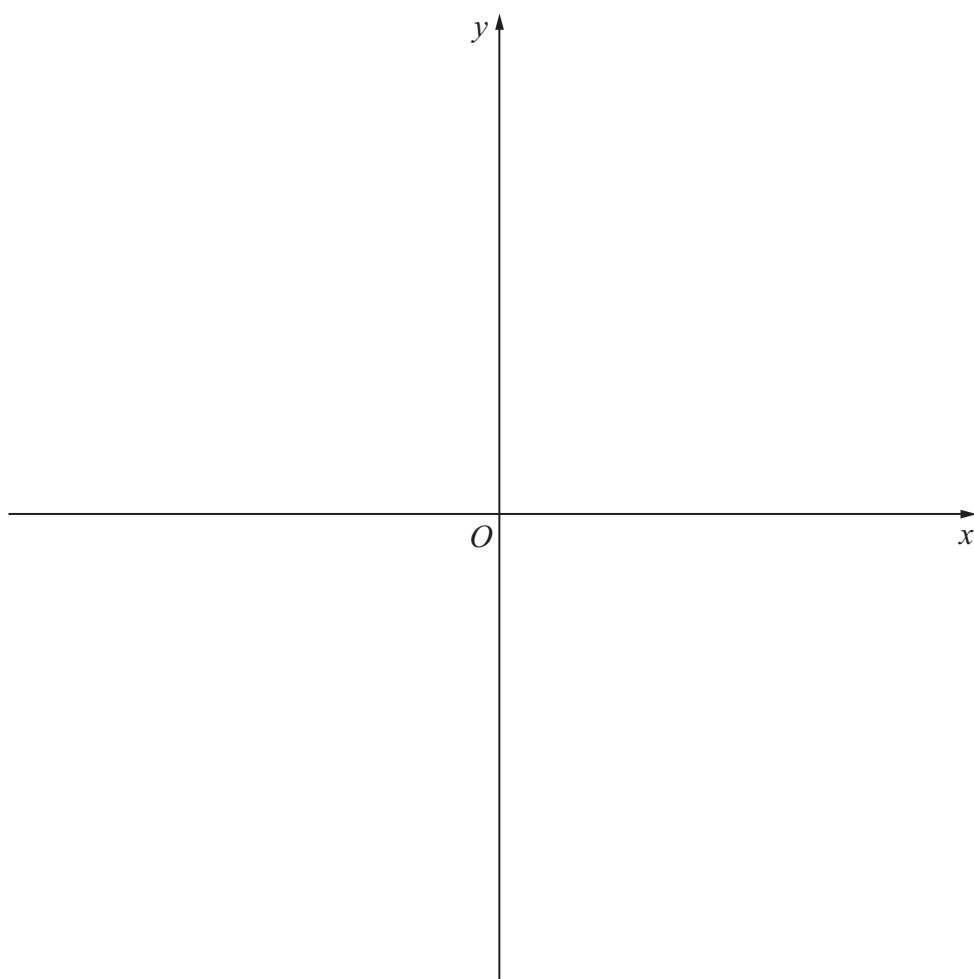
(a) Find the values of the constants a , b and c .

(3)

(b) On the axes on page 27, sketch the curve with equation $y = 4x^2 + 8x + 3$, showing clearly the coordinates of any points where the curve crosses the coordinate axes.

(4)





Question 11 continued

(Total 12 marks)

Q11

TOTAL FOR PAPER: 75 MARKS

END

