

4.

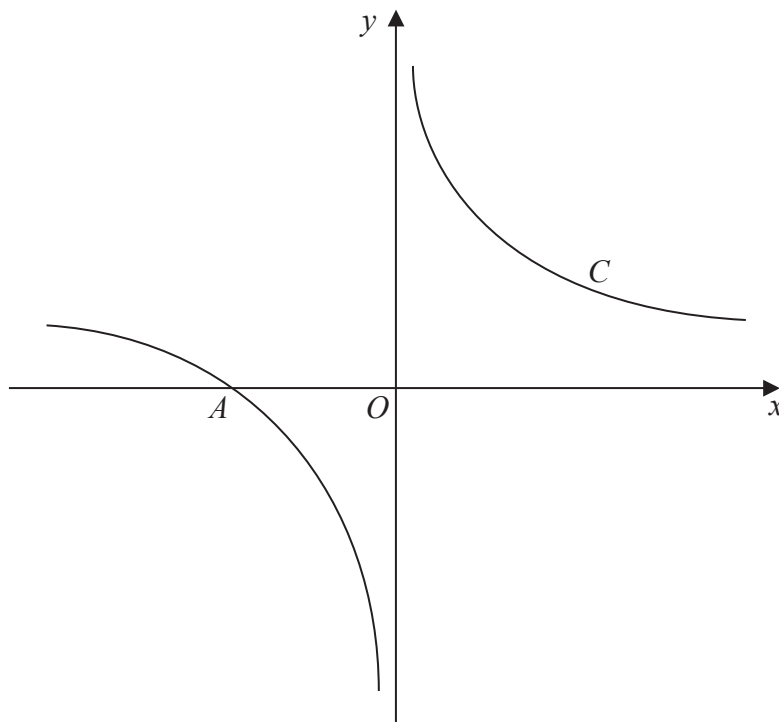


Figure 1

Figure 1 shows a sketch of the curve C with equation

$$y = \frac{1}{x} + 1, \quad x \neq 0$$

The curve C crosses the x -axis at the point A .

- (a) State the x coordinate of the point A . (1)

The curve D has equation $y = x^2(x - 2)$, for all real values of x .

- (b) A copy of Figure 1 is shown on page 7.
On this copy, sketch a graph of curve D .
Show on the sketch the coordinates of each point where the curve D crosses the coordinate axes. (3)
- (c) Using your sketch, state, giving a reason, the number of real solutions to the equation

$$x^2(x - 2) = \frac{1}{x} + 1 \quad (1)$$



Question 4 continued

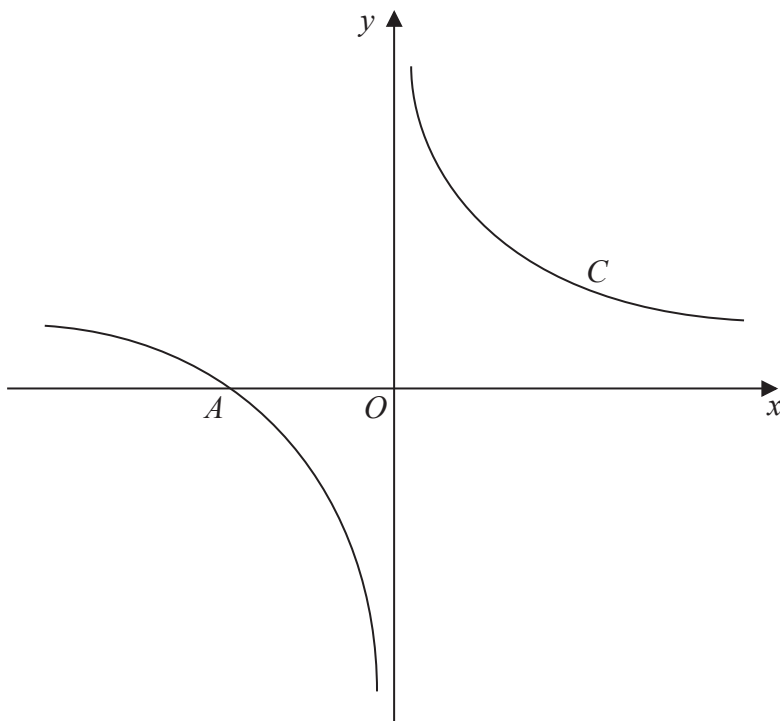


Figure 1

(Total 5 marks)

Q4



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Question 7 continued

Handwriting lines for question 7 continued.

(Total 7 marks)

Q7

Marking box for Q7



P 4 3 0 1 4 A 0 1 3 2 8

8. In the year 2000 a shop sold 150 computers. Each year the shop sold 10 more computers than the year before, so that the shop sold 160 computers in 2001, 170 computers in 2002, and so on forming an arithmetic sequence.

(a) Show that the shop sold 220 computers in 2007.

(2)

(b) Calculate the total number of computers the shop sold from 2000 to 2013 inclusive.

(3)

In the year 2000, the selling price of each computer was £900. The selling price fell by £20 each year, so that in 2001 the selling price was £880, in 2002 the selling price was £860, and so on forming an arithmetic sequence.

(c) In a particular year, the selling price of each computer in £s was equal to three times the number of computers the shop sold in that year. By forming and solving an equation, find the year in which this occurred.

(4)



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Question 8 continued

Lined area for writing the answer to Question 8.

Q8

(Total 9 marks)



9.

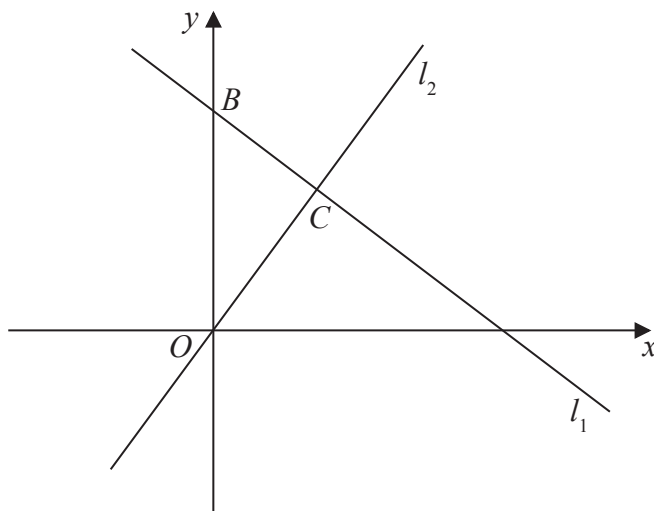


Figure 2

The line l_1 , shown in Figure 2 has equation $2x + 3y = 26$

The line l_2 passes through the origin O and is perpendicular to l_1

(a) Find an equation for the line l_2

(4)

The line l_2 intersects the line l_1 at the point C .

Line l_1 crosses the y -axis at the point B as shown in Figure 2.

(b) Find the area of triangle OBC .

Give your answer in the form $\frac{a}{b}$, where a and b are integers to be determined.

(6)



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Question 10 continued

Handwriting lines for question continuation, consisting of 32 horizontal lines.

Q10

(Total 10 marks)



