

$$f(x) = x^2 + 6x + 8$$

Given that $f(x)$ can be expressed in the form $(x + A)^2 + B$ where A and B are constants,

(a) find the value of A and the value of B .

(3)

(b) Hence, or otherwise, find

(i) the value of x for which $f(x)$ has its least value

(ii) the least value of $f(x)$.

(2)

The curve C has equation $y = x^2 + 6x + 8$

The line l , with equation $y = 2 - x$, intersects C at two points.

(c) Find the x -coordinate of each of these two points.

(4)

(d) Find the x -coordinate of the points where C crosses the x -axis.

(2)

(Parts (e) and (f) follow on page 30 and 31)

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P 3 8 6 4 8 R A 0 2 9 3 2

Question 11 continued

The curve C has equation $y = x^2 + 6x + 8$ and the line l has equation $y = 2 - x$

In the space below,

(e) sketch, on the same axes, the curve C and the line l .

(2)

(f) Find the area of the finite region bounded by the curve C and the line l .

(5)



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