2

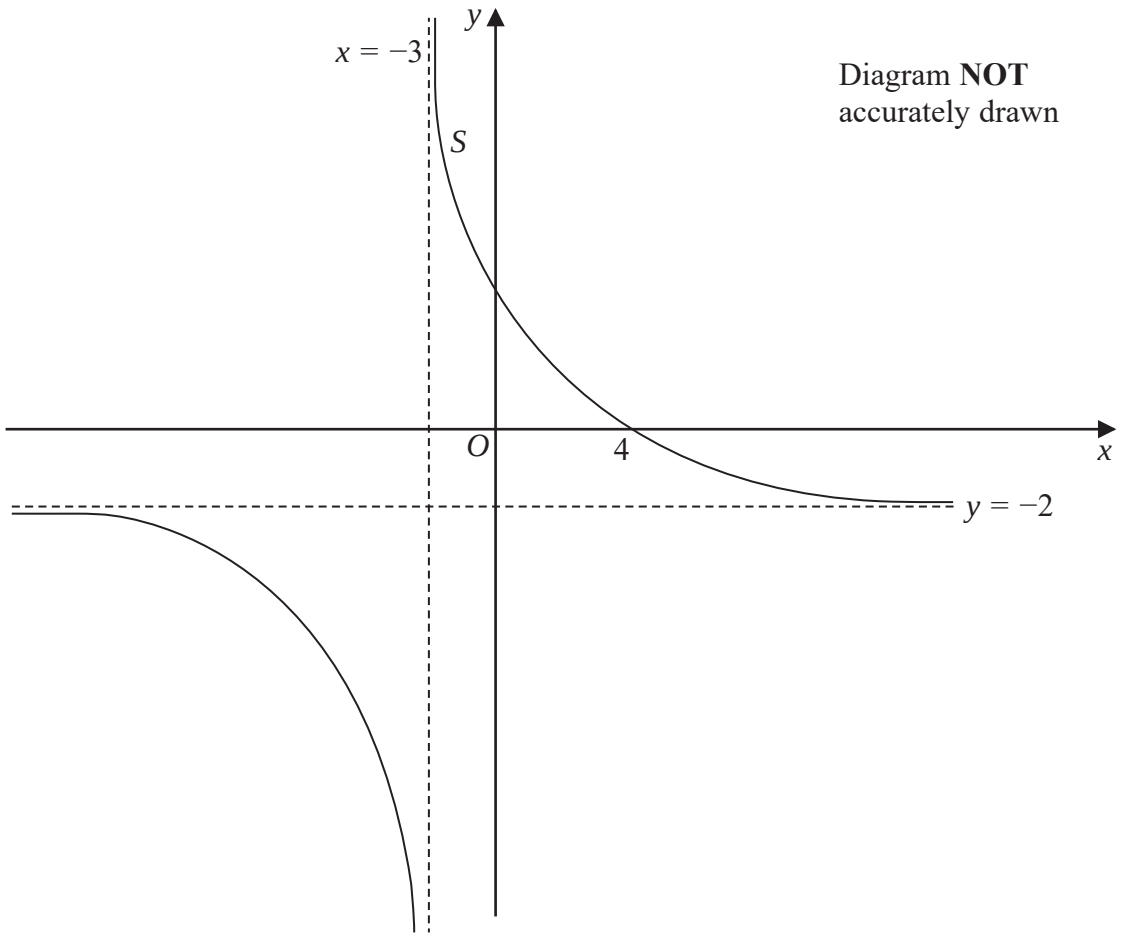

Figure 1

Figure 1 shows part of the curve S with equation $y = \dfrac{ax + b}{x + c}$ where a, b and c are integers.

The asymptote to S that is parallel to the x-axis has equation $y = -2$
The asymptote to S that is parallel to the y-axis has equation $x = -3$
The curve crosses the x-axis at the point with coordinates $(4, 0)$
The curve crosses the y-axis at the point with coordinates $(0, p)$ where p is a rational number.

Find

(i) the value of a,

(ii) the value of b,

(iii) the value of c,

(iv) the value of p.

(4)

Question 2 continued

(Total for Question 2 is 4 marks)