

Question 4 (7 marks)

Consider the function $f(x) = \frac{1}{x(x-2)}$.

- (a) (i) On the axes in Figure 3, sketch the graph of $y = f(x)$.
Clearly show the behaviour of the function near the asymptote(s).

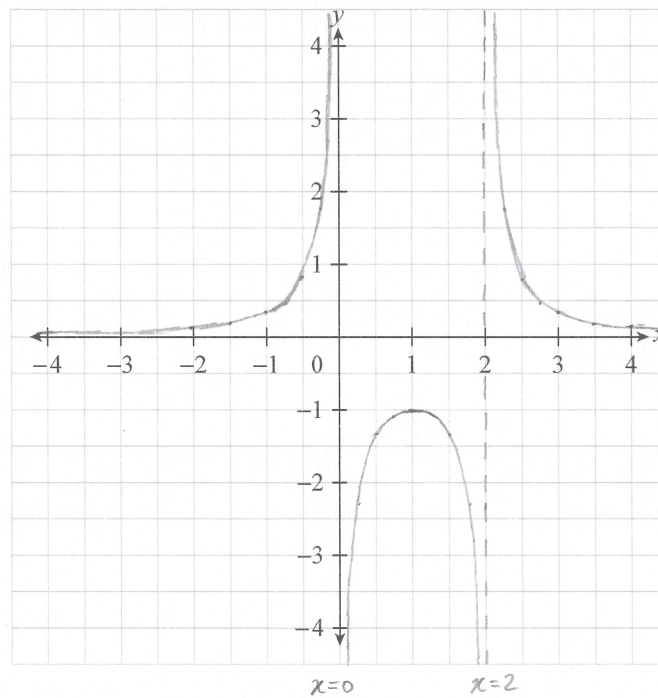


Figure 3

(3 marks)

- (ii) On the axes in Figure 4, sketch the graph of $y = |f(x)|$.
Clearly show the behaviour of the function near the asymptote(s).

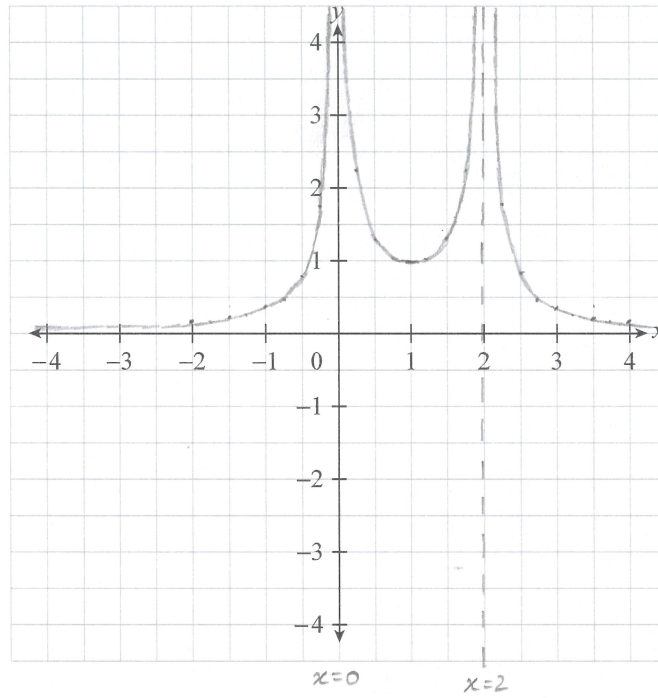


Figure 4

(1 mark)

- (b) On the axes in Figure 5, sketch the graph of $y = f(|x|)$.
Clearly show the behaviour of the function near the asymptote(s).

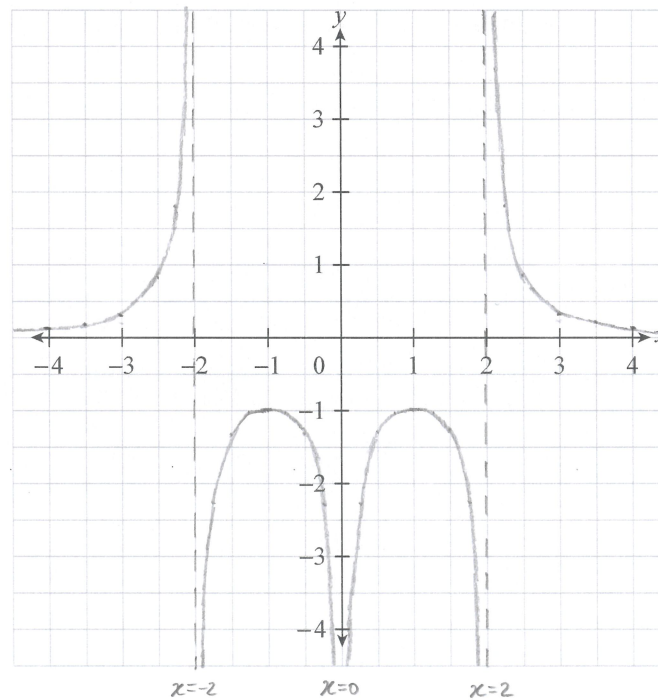


Figure 5

(3 marks)