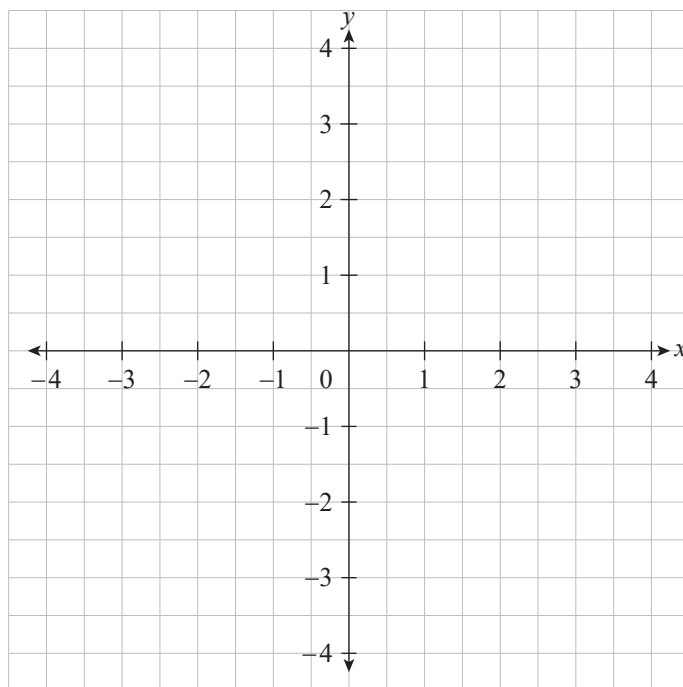


**Question 4** (7 marks)

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).

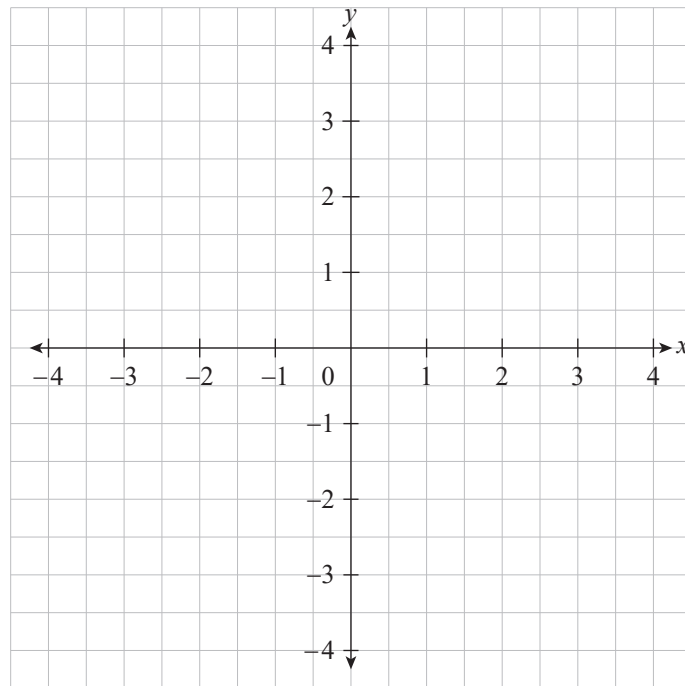


Figure 4

(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).

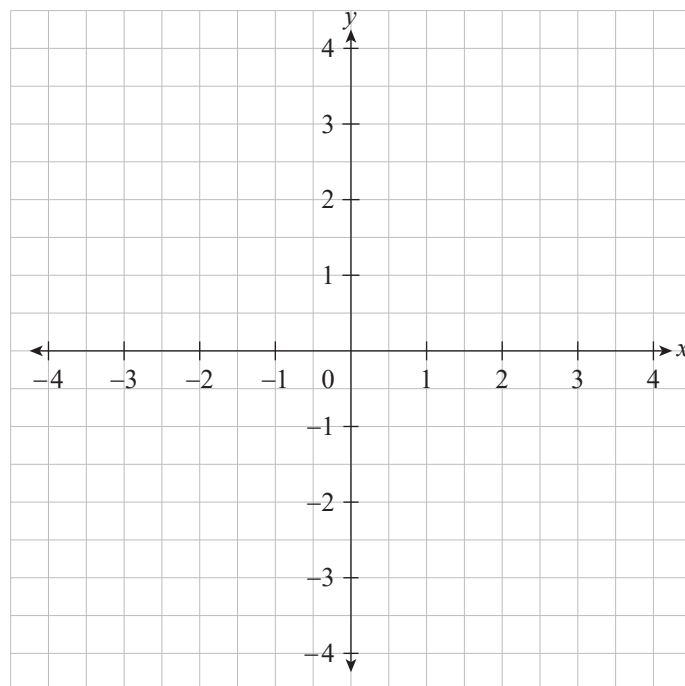


Figure 5

(3 marks)