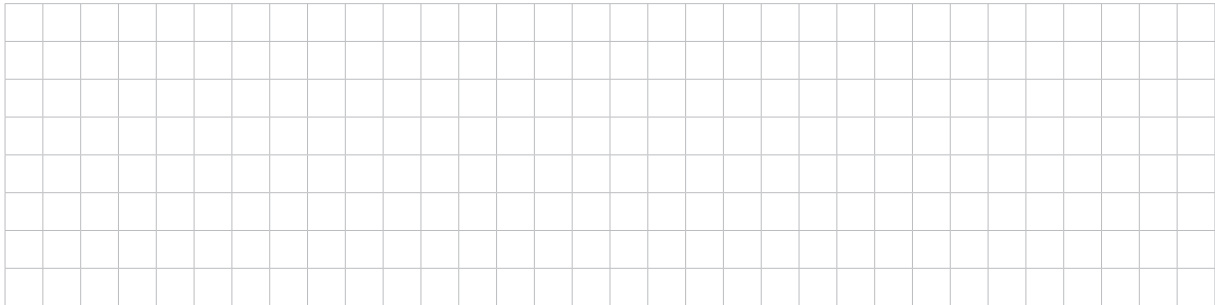


**QUESTION 8** (10 marks)

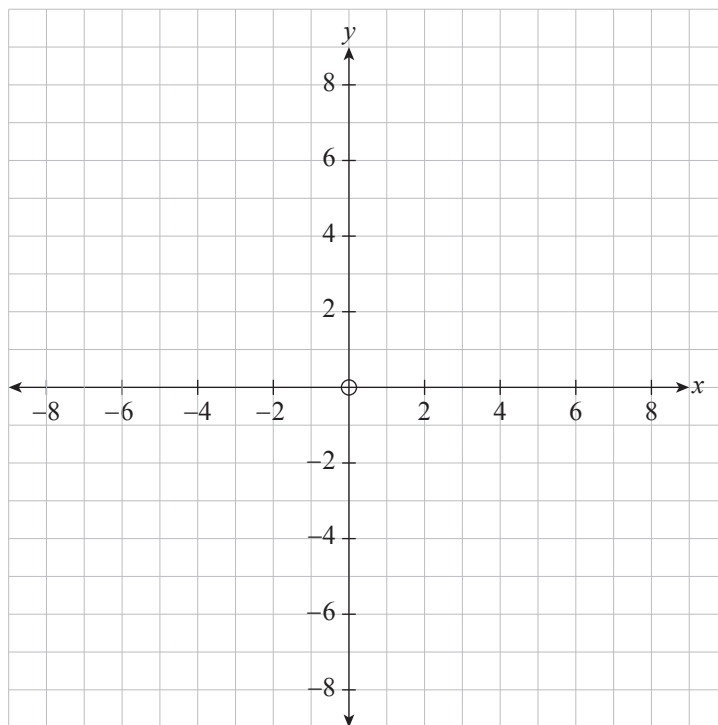
(a) Show that  $\frac{1}{x-2} - \frac{1}{x+3} = \frac{5}{(x-2)(x+3)}$ .



(1 mark)

Let  $f(x) = \frac{5}{(x-2)(x+3)}$ .

(b) (i) Draw the graph of  $y = f(x)$  on the axes in Figure 5.



**Figure 5**

(3 marks)

(ii) Draw the graph of  $y = |f(x)|$  on the axes in Figure 6.

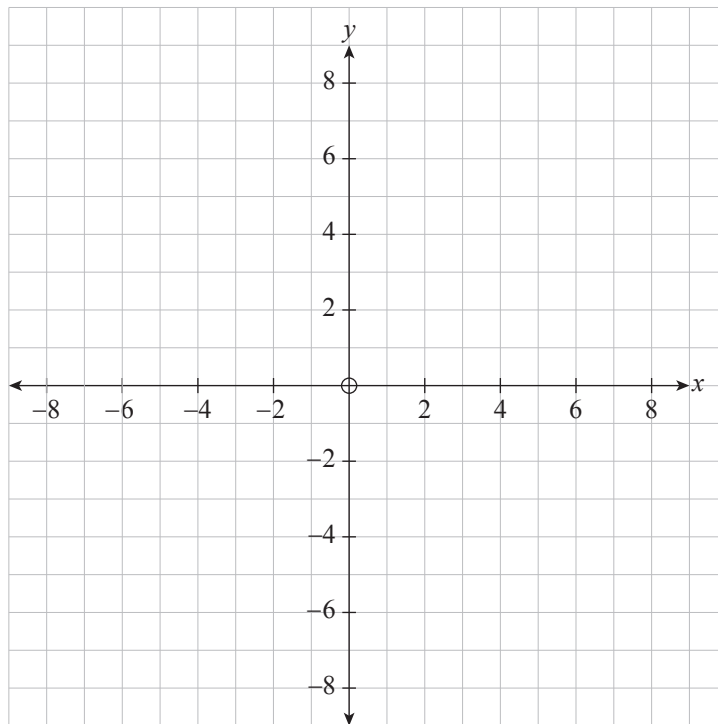


Figure 6

(1 mark)

(iii) Draw the graph of  $y = |f(x)| - f(x)$  on the axes in Figure 7.

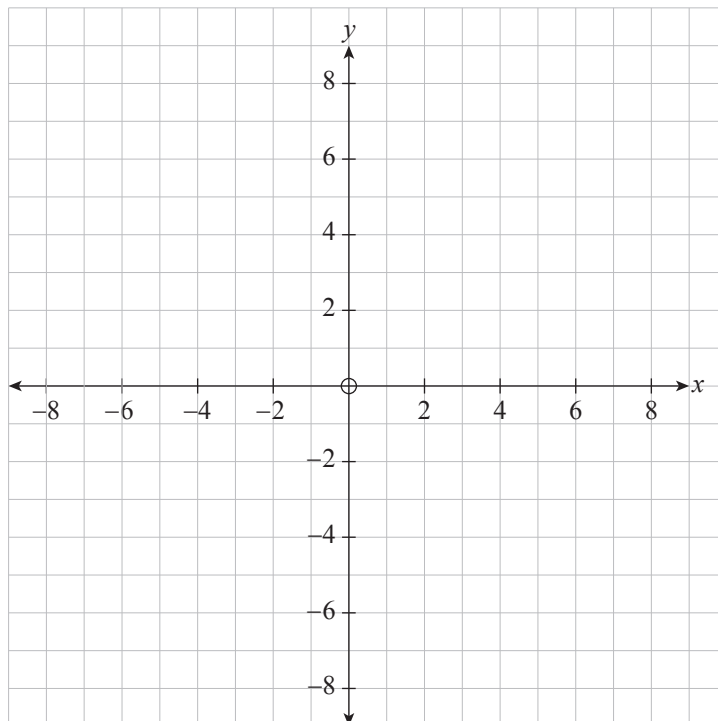
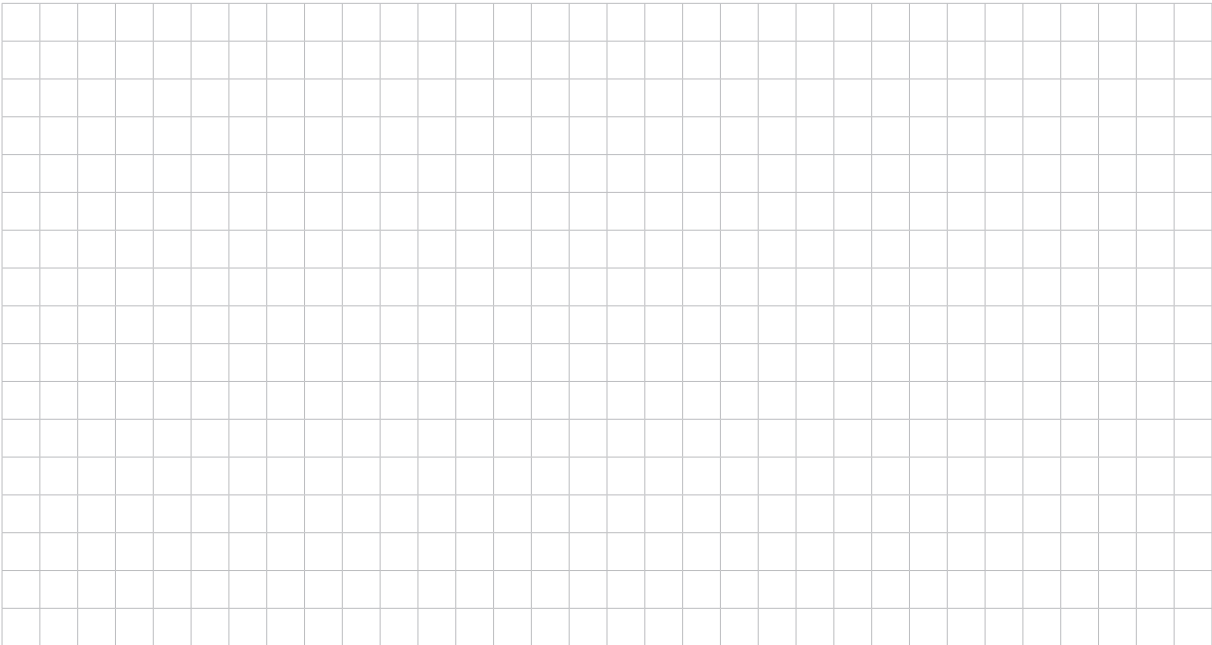


Figure 7

(2 marks)

(c) Find the exact area between the graph of  $y = |f(x)| - f(x)$ , the  $x$ -axis, and the lines  $x = -2$  and  $x = 1$ .



(3 marks)