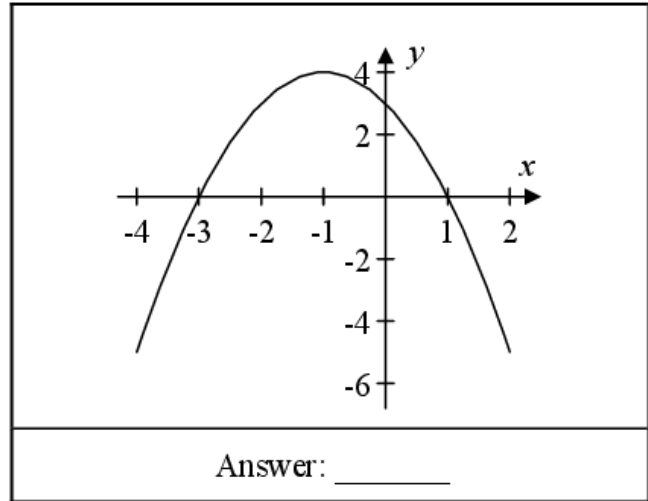
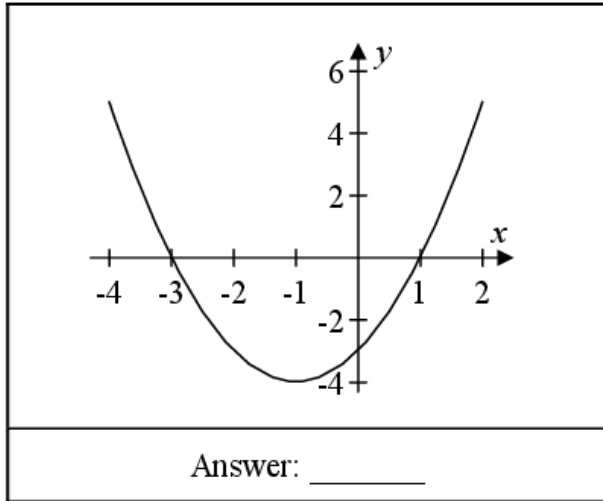


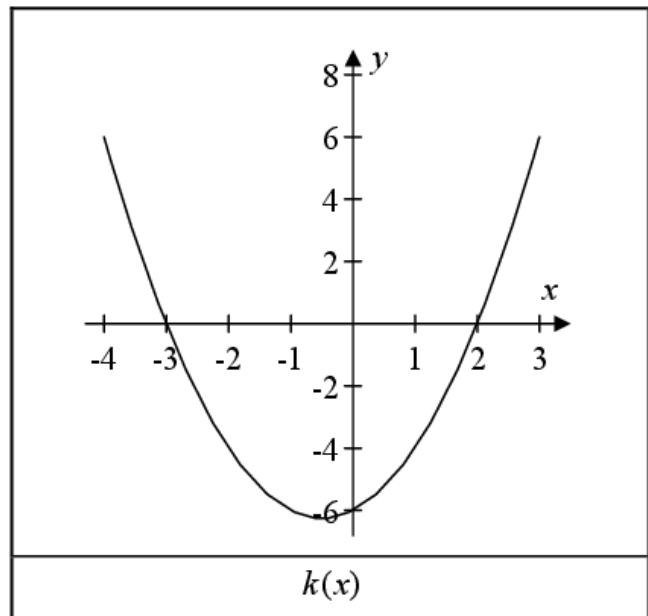
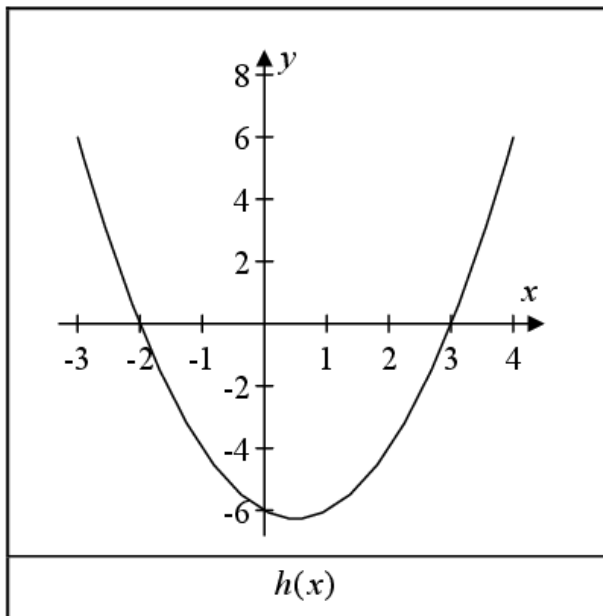


# Question 1

- (a) The graphs of the functions  $f(x) = x^2 + 2x - 3$  and  $g(x) = -x^2 - 2x + 3$  are shown below. Identify each graph by writing  $f(x)$  or  $g(x)$  in the space provided below the graph.



- (b) The graphs of the functions  $y = h(x)$  and  $y = k(x)$  are shown below.



Write down the roots of each function.

Hence, or otherwise, write down an equation for each function.

Roots of  $h(x)$  : \_\_\_\_\_

Equation:  $h(x) =$  \_\_\_\_\_

Roots of  $k(x)$  : \_\_\_\_\_

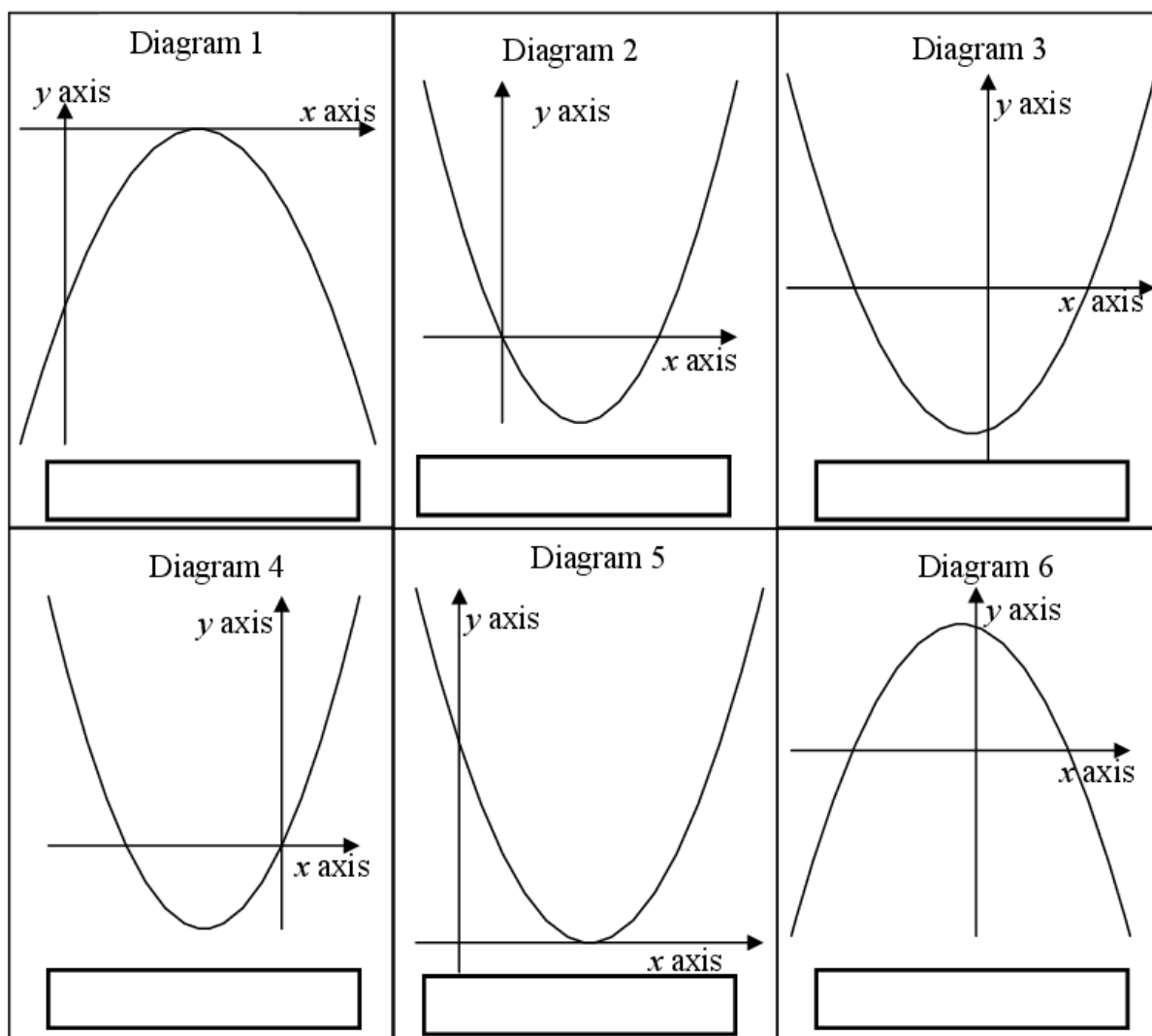
Equation:  $k(x) =$  \_\_\_\_\_





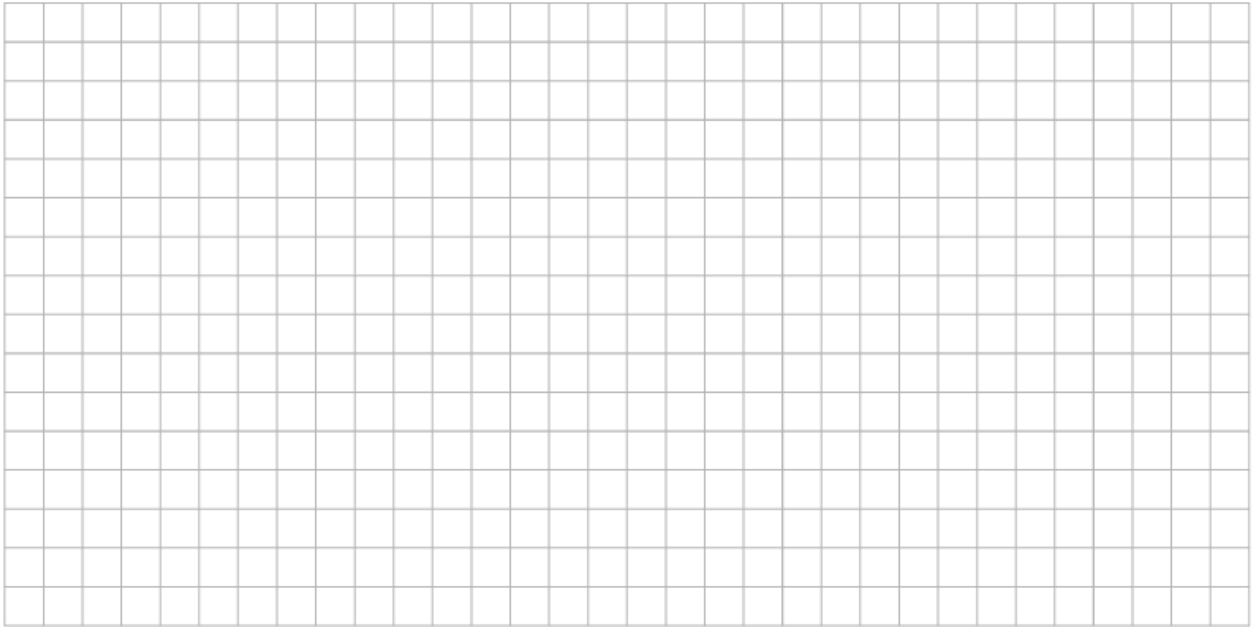
- (b) The table below shows the sketches of six different functions. Three of the sketches belong to the three functions from part (a).

Write  $f(x)$ ,  $g(x)$  or  $h(x)$  into the box underneath the correct sketch for each of the three functions.

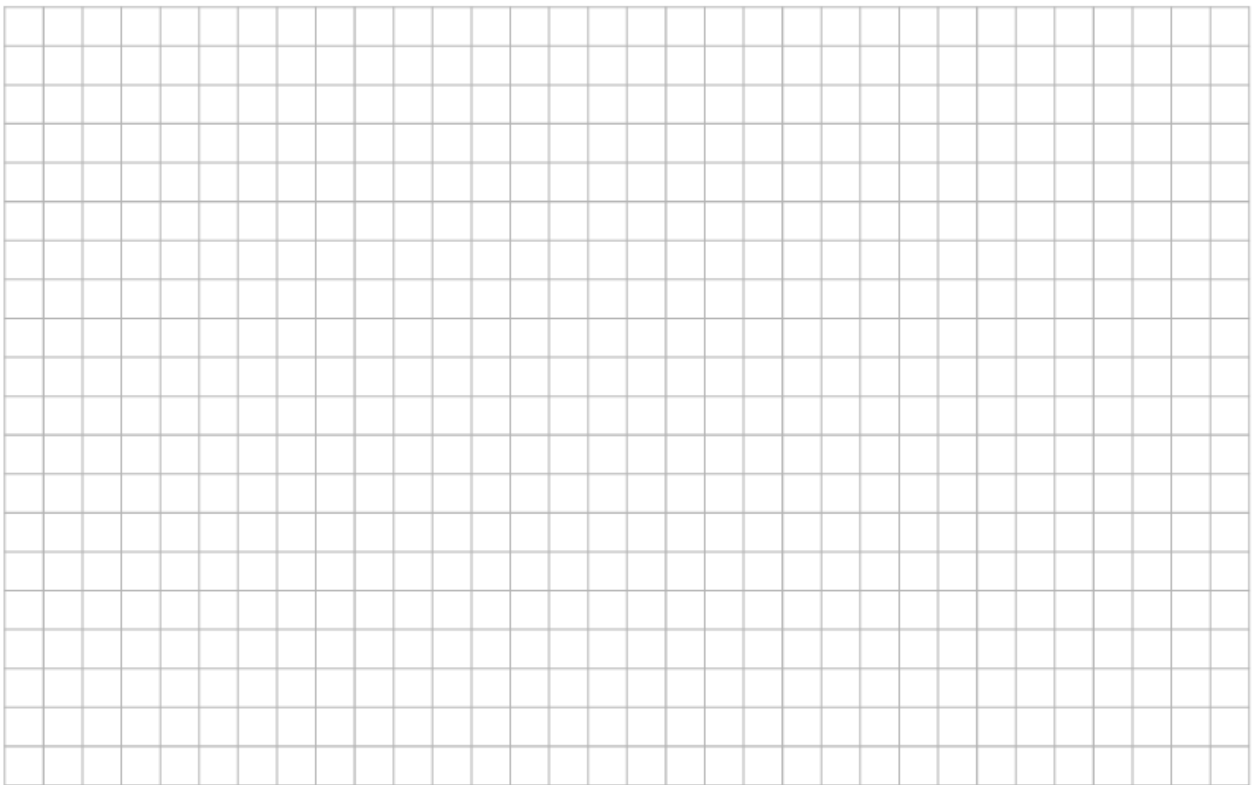




(b) Keith's graph passes through the point (3, 2). Find the value of  $k$  that Keith used.



(c) On Alice's graph, the two roots of the function are the same. Find the value of  $k$  that Alice used.



(d) Draw a sketch of Alice's function on the diagram shown in part (a).

- (e) Emma's graph shows that the roots of her function are  $-5$  and  $3$ .  
Find the value of  $k$  that she used.

