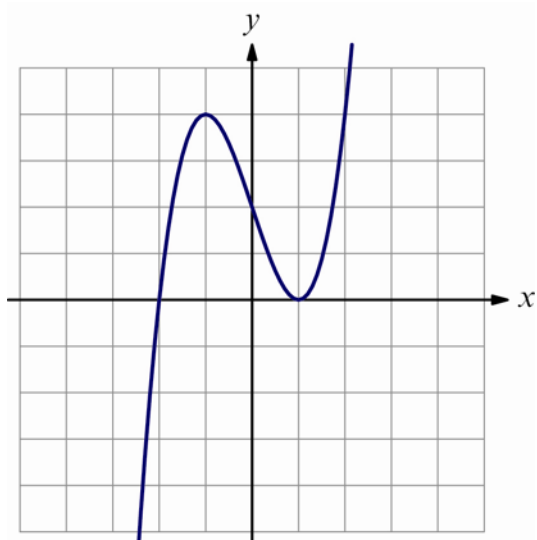


## Self-assessment: 5 Transformations of graphs

1. The diagram shows the graph of  $y = g(x)$ .



On separate diagrams, sketch the graphs of:

- (a)  $y = g(x) - 2$
- (b)  $y = 2g(x + 1)$
- (c)  $y = g(-x)$

*(accessible to students on the path to grade 3 or 4) [9 marks]*

2. Do not use a calculator to answer this question.

- (a) (i) Write  $x^2 - 6x + 5$  in the form  $(x - h)^2 - k$ .
- (ii) Describe a single transformation that transforms the graph of  $y = x^2$  into the graph of  $y = x^2 - 6x + 5$ .

*(accessible to students on the path to grade 3 or 4) [4 marks]*

3. The graph of  $y = x^2 - 3x$  is transformed by a horizontal stretch with scale factor 2 followed by a horizontal translation with vector  $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$ . Find the equation of the resulting graph in the form  $y = ax^2 + bx + c$ .

*(accessible to students on the path to grade 5 or 6) [6 marks]*



**4. Do not use a calculator to answer this question.**

Sketch the graph of  $y = 3e^x - 5$ . State the equation of the horizontal asymptote and the coordinates of the axes intercepts.

*(accessible to students on the path to grade 5 or 6) [6 marks]*

**5. A graph with equation  $y = 3x^2 + bx + 5$  is reflected in the y-axis.**

- (a) Write down the equation of the resulting graph.
- (b) Find the value of  $b$  for which the two graphs are the same.

*(accessible to students on the path to grade 7) [5 marks]*