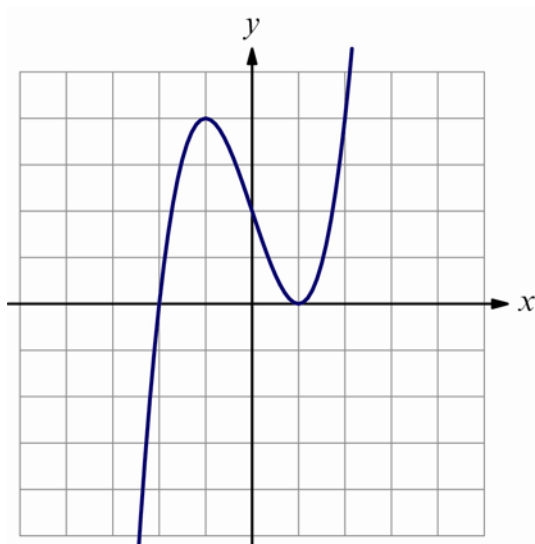


Self-assessment: 6 Transformations of graphs

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



On separate diagrams, sketch the graphs of:

(a) $y = 2g(x + 1)$

(b) $y = \frac{1}{g(x)}$

(accessible to students on the path to grade 3 or 4) [6 marks]

2. **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 3 or 4) [5 marks]

3. Find the value of b for which $f(x) = 3x^2 + bx + 5$ is an even function.

(accessible to students on the path to grade 5 or 6) [3 marks]



4. 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 $y = x^2 - 6x + 5$.
- (iii) Sketch the graph of $y = |x^2 - 6x + 5|$, marking the coordinates of the axes intercepts and the maximum point.

(accessible to students on the path to grade 3 or 4)

- (b) (i) Add the graph of $y = x - 1$ to your sketch.
- (ii) Solve the equation $|x^2 - 6x + 5| = x - 1$.
- (iii) Solve the inequality $|x^2 - 6x + 5| > x - 1$.

(accessible to students on the path to grade 5 or 6)

[16 marks]