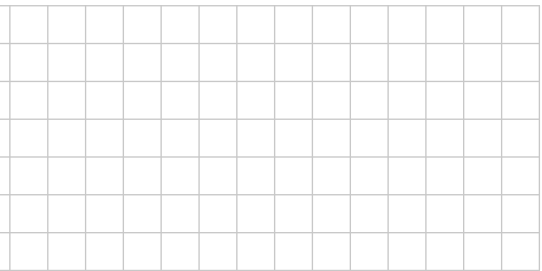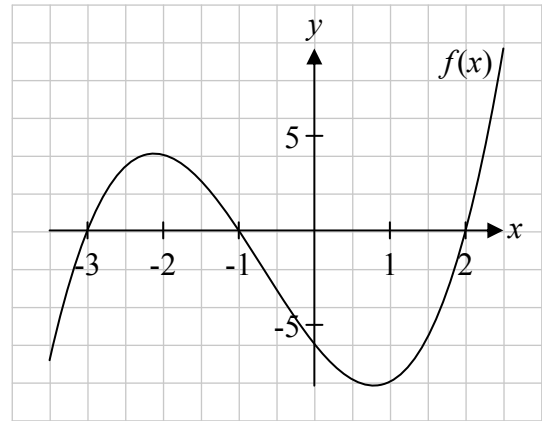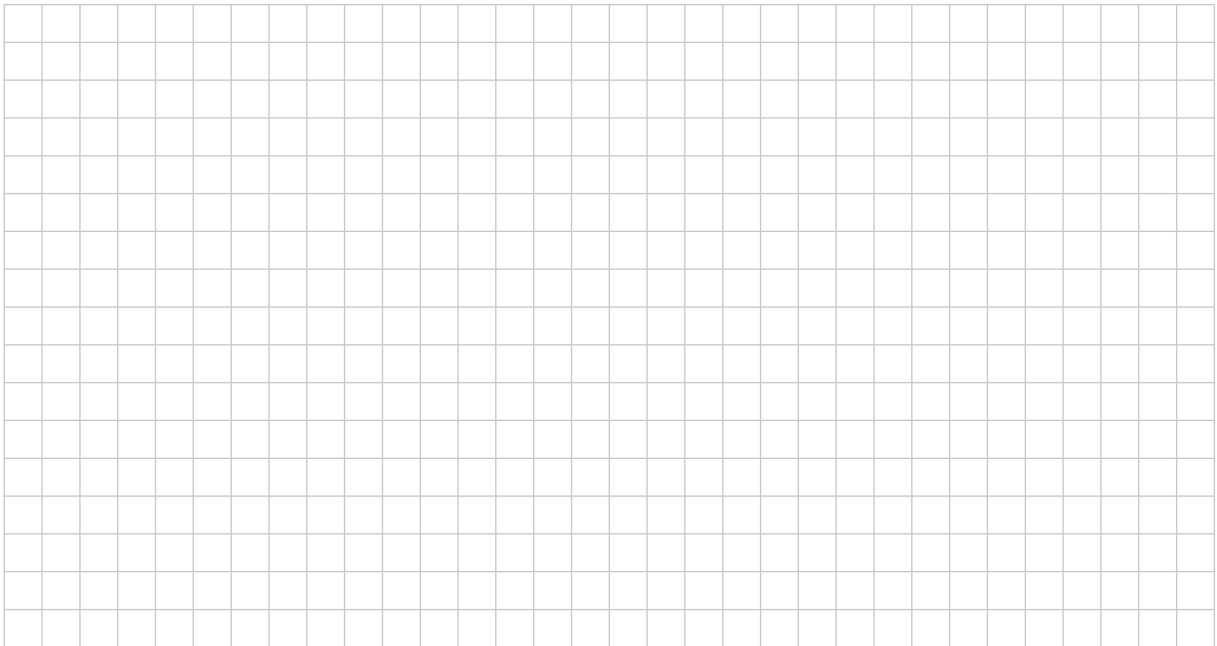**Question 1** **(25 marks)**

(a) The graph of a cubic function $f(x)$ cuts the x-axis at $x = -3, x = -1$ and $x = 2$, and the y-axis at $(0, -6)$, as shown.

Verify that $f(x)$ can be written as
$$f(x) = x^3 + 2x^2 - 5x - 6.$$

(b) **(i)** The graph of the function $g(x) = -2x - 6$ intersects the graph of the function $f(x)$ above. Let $f(x) = g(x)$ and solve the resulting equation to find the co-ordinates of the points where the graphs of $f(x)$ and $g(x)$ intersect.

(ii) Draw the graph of the function $g(x) = -2x - 6$ on the diagram above.

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