



- **1.** The points Two functions are such that $f(x) = x^2 + 2$ and q(x) = x + 1Find the value of f(g(3))(2) 2. If h(x) = 2x - 1 and $f(x) = \frac{2}{x}$ find the value of h(f(x))(2) **3.** For each function find $f^{-1}(x)$ (b) $f(x) = x^3 - 1$ (a) f(x) = 2x + 1(4) 4. For the function $q(x) = x^2 - 1$ with domain {-3, -2, -1, 0, 1, 2, 3} (a) State the range (b) Draw a graph of the function (3) 5. Functions f and g are given by f(x) = -3x and $g(x) = x^3 - 2x$ Find, in their simplest forms, formulae for (a) $f(q(\mathbf{x}))$ (b) *g* (*f*(x)) (c) f(f(x))(6) 6. The diagram shows the graph of y = q(x). Sketch the graph of the **inverse** function of *q*, (3,2) showing three points on the curve. (3) O
- 7. Given that the lines with equations

x + 4y = 7, 3x + y = 10 and x - 5y + a = 0

meet at the same point (i.e. they are concurrent), find the value of a.

(5)