9 Functions f and g are both defined for $x \in \mathbb{R}$ and are given by

$$f(x) = x^2 - 4x + 9,$$
$$g(x) = 2x^2 + 4x + 12.$$

(a) Express $f(x)$ in the form $(x - a)^2 + b$. [1]

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(b) Express $g(x)$ in the form $2[(x + c)^2 + d]$. [2]

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(c) Express $g(x)$ in the form $kf(x + h)$, where k and h are integers. [1]

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(d) Describe fully the two transformations that have been combined to transform the graph of $y = f(x)$ to the graph of $y = g(x)$. [4]

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