10 The function f is defined by $f(x) = 4x^2 - 24x + 11$, for $x \in \mathbb{R}$.

(i) Express $f(x)$ in the form $a(x - b)^2 + c$ and hence state the coordinates of the vertex of the graph of $y = f(x)$. [4]

The function g is defined by $g(x) = 4x^2 - 24x + 11$, for $x \leqslant 1$.

(ii) State the range of g. [2]

(iii) Find an expression for $g^{-1}(x)$ and state the domain of g^{-1}. [4]