11 **(i)** Express $2x^2 + 8x - 10$ in the form $a(x + b)^2 + c$. [3]

(ii) For the curve $y = 2x^2 + 8x - 10$, state the least value of y and the corresponding value of x. [2]

(iii) Find the set of values of x for which $y \geqslant 14$. [3]

Given that $\mathrm{f} : x \mapsto 2x^2 + 8x - 10$ for the domain $x \geqslant k$,

(iv) find the least value of k for which f is one-one, [1]

(v) express $\mathrm{f}^{-1}(x)$ in terms of x in this case. [3]