10 **(i)** Express $x^2 - 2x - 15$ in the form $(x + a)^2 + b$. [2]

The function f is defined for $p \leqslant x \leqslant q$, where p and q are positive constants, by

$$\mathrm{f} : x \mapsto x^2 - 2x - 15.$$

The range of f is given by $c \leqslant \mathrm{f}(x) \leqslant d$, where c and d are constants.

(ii) State the smallest possible value of c. [1]

For the case where $c = 9$ and $d = 65$,

(iii) find p and q, [4]

(iv) find an expression for $\mathrm{f}^{-1}(x)$. [3]