10 The functions f and g are defined as follows:

$$\mathrm{f} : x \mapsto x^2 - 2x, \quad x \in \mathbb{R},$$
$$\mathrm{g} : x \mapsto 2x + 3, \quad x \in \mathbb{R}.$$

(i) Find the set of values of x for which $\mathrm{f}(x) > 15$. [3]

(ii) Find the range of f and state, with a reason, whether f has an inverse. [4]

(iii) Show that the equation $\mathrm{gf}(x) = 0$ has no real solutions. [3]

(iv) Sketch, in a single diagram, the graphs of $y = \mathrm{g}(x)$ and $y = \mathrm{g}^{-1}(x)$, making clear the relationship between the graphs. [2]