9 Functions f and g are defined by

$$\begin{aligned} \mathrm{f} &: x \mapsto 2x + 3 \quad \text{for } x \leqslant 0, \\ \mathrm{g} &: x \mapsto x^2 - 6x \quad \text{for } x \leqslant 3. \end{aligned}$$

(i) Express $\mathrm{f}^{-1}(x)$ in terms of x and solve the equation $\mathrm{f}(x) = \mathrm{f}^{-1}(x)$. [3]

(ii) On the same diagram sketch the graphs of $y = \mathrm{f}(x)$ and $y = \mathrm{f}^{-1}(x)$, showing the coordinates of their point of intersection and the relationship between the graphs. [3]

(iii) Find the set of values of x which satisfy $\mathrm{gf}(x) \leqslant 16$. [5]