11 **(a)** Express x^2+4x+2 in the form $(x+a)^2+b$, where a and b are integers. [2]

The functions f and g are defined as follows.

$$\text{f}(x) = x^2+4x+2 \qquad \text{for } x \leqslant -2$$

$$\text{g}(x) = -x-4 \qquad \text{for } x \geqslant -2$$

(b) **(i)** Find an expression for $\text{f}^{-1}(x)$. [3]

(ii) Find an expression for $(\text{gf})^{-1}(x)$. [4]

Additional page

If you use the following page to complete the answer to any question, the question number must be clearly shown.