

2 (a) The function $f(x)$ is defined by

$$f(x) = \sqrt{1 + 2x} \text{ for } x \geq -\frac{1}{2}.$$

Find an expression for $f^{-1}(x)$ and state the domain of this inverse function. **[3]**

(b) Explain why $g(x) = 1 + x^2$, with domain all real numbers, has no inverse function. **[1]**