

3 The function f is defined by $f(x) = (x - 3)^2 - 17$ for $x \geq k$, where k is a constant.

(a) Given that $f^{-1}(x)$ exists, state the least possible value of k . **[1]**

(b) Evaluate $ff(5)$. **[2]**

(c) Solve the equation $f(x) = x$. **[3]**

(d) Explain why your solution to part **(c)** is also the solution to the equation $f(x) = f^{-1}(x)$. **[1]**