Functions f and g are given by $f(x) = x^2 - 2$ and $g(x) = 3x + 5$, $x \in \mathbb{R}$.

(a) Find expressions for:

    (i) $f(g(x))$ and   2

    (ii) $g(f(x))$.   1

(b) Determine the range of values of x for which $f(g(x)) < g(f(x))$.   4

Answers:

  (a) (i) $(3x + 5)^2 - 2$ or equivalent

      (ii) $3(x^2 - 2) + 5$ or equivalent

  (b) $-4 < x < -1$