

3 The functions f and g are defined for all real values of x by

$$f(x) = 2x^2 + 6x \text{ and } g(x) = 3x + 2.$$

(a) Find the range of f . **[3]**

(b) Give a reason why f has no inverse. **[1]**

(c) Given that $fg(-2) = g^{-1}(a)$, where a is a constant, determine the value of a . **[4]**

(d) Determine the set of values of x for which $f(x) > g(x)$. Give your answer in set notation. **[3]**