

Note that there are two problems, the second of which is on the back.

1. Let $f(x) = x^2 + 2$ and $g(x) = \sqrt{x - 5}$.

- (a) Calculate $(f \circ g)(8)$.
- (b) Calculate $(g \circ f)(8)$.
- (c) Find $(f \circ g)$ and give its domain and range.
- (d) Find $(g \circ f)$ and give its domain and range.

Recall that, for $a \geq 0$, $(\sqrt{a})^2 = a$.

2. Let $f(x) = 2x^3 - 7$.

(a) Assuming that f has an inverse function f^{-1} , what is $f^{-1}(9)$?

(b) Find f^{-1} .

Recall that $a^3 = b$ is equivalent to $a = \sqrt[3]{b}$.