

Quiz 2

Let f and g be functions defined by

$$f(x) = \begin{cases} x - 1 & \text{if } x < 0 \\ 4 - x & \text{if } x \geq 0 \end{cases}$$

and

$$g(x) = 2x - 3.$$

Compute $g \circ f(-2)$, $g \circ f(-1)$, and $g \circ f(0)$. Then find a rule for $g \circ f$.

Solution: $g \circ f(-2) = g(-3) = -9$, $g \circ f(-1) = g(-2) = -7$, and $g \circ f(0) = g(4) = 5$. And

$$g \circ f = \begin{cases} 2(x - 1) - 3 & \text{if } x < 0 \\ 2(4 - x) - 3 & \text{if } x \geq 0 \end{cases} = \begin{cases} 2x - 5 & \text{if } x < 0 \\ 5 - 2x & \text{if } x \geq 0 \end{cases}$$