

## Exercise 46

For the following exercises, for each pair of functions, find a.  $(f \circ g)(x)$  and b.  $(g \circ f)(x)$  Simplify the results. Find the domain of each of the results.

$$f(x) = \sqrt{x}, g(x) = x + 9$$

[**TYPO: Place a period before the word, "simplify."**]

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### Solution

$$(f \circ g)(x) = f(g(x)) = f(x + 9) = \sqrt{x + 9}$$

$$\text{Domain: } \{x \mid x + 9 \geq 0\}$$

$$(g \circ f)(x) = g(f(x)) = g(\sqrt{x}) = \sqrt{x} + 9$$

$$\text{Domain: } \{x \mid x \geq 0\}$$