# Chapter 5. Exponential and Logarithmic Functions

Section 5.1. Composite Functions

Note. In this section we define and use compositions of functions, and find the domain of a composite function.

Definition. Given two functions f and g, the *composite function*, denoted $f \circ g$ (read as "f composed with g"), is defined by $(f \circ g)(x) = f(g(x))$. The domain of $f \circ g$ is the set of all numbers x in the domain of g such that $g(x)$ is in the domain of f.
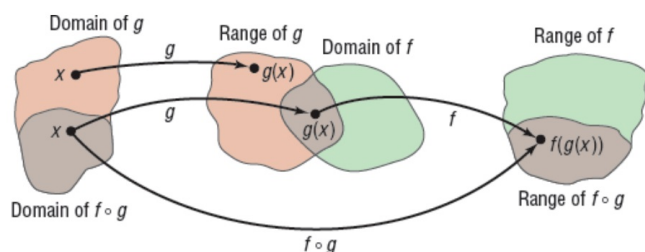
Page 249 Figure 2

Note. Continuing the idea of a function as a machine, a composite function can be thought of as feeding the output of the first function into the second function. Here x is the input to the function g, yielding $g(x)$. Then $g(x)$ is the input to the function f, yielding $f(g(x))$. Note that the "inside" function g in $f(g(x))$ is "processed" first.
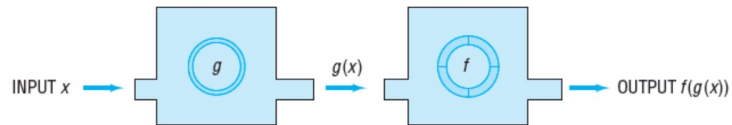
Page 250 Figure 3

Example. Page 254 numbers 12 and 22.

Example. Page 255 numbers 30 and 36.

Example. Page 255 numbers 44, 48, and 60.

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