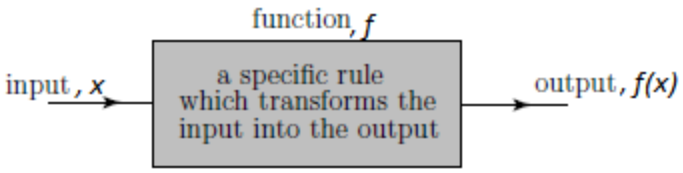
MAC 1105 Pre-Class Assignment (due 6/5 by 11:59pm):

Read sections 2.6 and 2.7 from the textbook to prepare for class

A function relates an input to an output.

There are three main parts which constitute a function

- The input
- The specific rule
- The output



A rule is a function if it produces only a **single** output for any given input.

#1

Write down the output from the function shown in Figure 3 when the input is

a) 4, b) -3, c) x d) t.

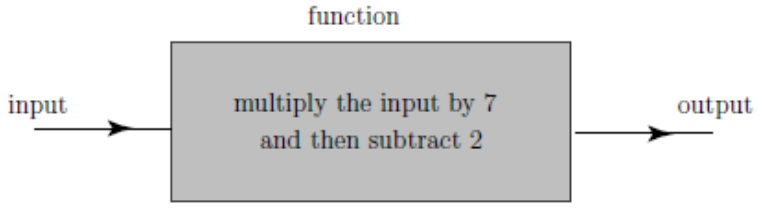


Figure 3.

#2

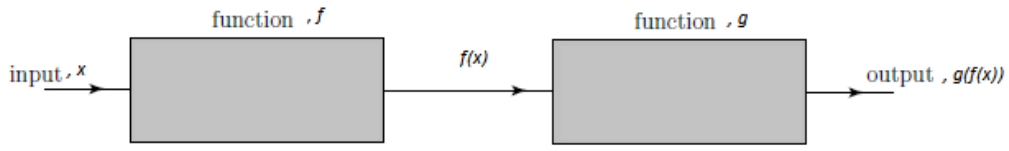
State in words the rule defined by each of the following functions:
a) $f(x) = 6x$
b) $f(t) = 6t - 1$
c) $g(x) = x^2 - 7$
d) $h(t) = t^3 + 5$
e) $p(x) = x^3 + 5$

For example in a) the rule for f is "multiply the input by 6"

f) Based on our observation of d) and e) can we conclude that it is the rule that is important when describing a function and not the letters being used?

#3
Write down a mathematical function which can be used to describe the following rules:
a) 'square the input and divide the result by 2'. Use the letter x for input and the letter f to represent the function.
b) 'divide the input by 3 and then add 7'. Label the function g and call the input t.

Composition of two functions



Consider, f(x) = 2x+3 and g(x) = x^2

The function g(x) composed with f(x) is written as (g ° f)(x) = g(f(x))

(g ° f)(x) = $(2x+3)^2$