; Step by Step: Calling a Newly Defined Function
; ==================================================

(require picturing-programs)

; Here is a function definition.
; • How do you see it is a function definition, not a simple value definition?
; • What is the name of the new function?
; • How many parameters does the function have, and what are their names?

(define (a b c) ; the function “header”
    (above c b)) ; the function “body”

; Click on the "Check Syntax" button in DrRacket and hover your mouse pointer
; over a parameter/place-holder name in the header: an arrow (or arrows) appear
; that point to where the parameters are used in the body.
; Notice that in this example the parameters are used in the body in a different
; order than in the header.
; On quizzes and tests feel free to draw those arrows in yourself for guidance.

; What are the steps to determine the result value of the following expression:

(a (square 10 "solid" "black")
    (triangle 20 "outline" "black"))

; Step 1. Simplify the sub-expressions.

(a △)

; Step 2. Match the argument values to the function definition parameter names,
; in the same order.
;
; Function definition header: (a b c)
; Expression using the function: (a △ △)
;
; So b is △, c is △.

; Step 3. Copy the function body, replacing the parameter names with the values.
;
; (above c b)
; (above △ △)

(above △ △)

; Step 4. Evaluate that expression to get the final result.

△ △
; Summarizing the steps:
(a (square 10 "solid" "black")
  (triangle 20 "outline" "black"))
(a ■ △) ; b is ■, c is △, in (above c b)
(above △ ■)

; Those are the same steps you see when you use the "Stepper" in DrRacket.
; On a quiz or test you may write out any of the intermediate steps if you like
; [and that increases the possibility for getting partial credit if the final
; result is incorrect].