Assume that DrRacket is in the Intermediate Student Language.

(require picturing-program)

A. Consider the following definition:

(define LOL (list (list "dog" "sloth") "cat" (list "bird")))

Show the result value of each of the following expressions:

A1. (length LOL)

A2. (first LOL)

A3. (rest LOL)

A4. (second LOL)

A5. (second (first LOL))

A6. (list (first LOL) (first LOL))

A7. (length (list (first LOL) (first LOL)))

B. Consider the following definitions:

(define (multiple-of-20? n)
  (= (remainder n 20) 0))

(define (over-26? im)
  (> (image-width im) 26))

(define (over-4? s)
  (> (string-length s) 4))

(define L1 (range 1 100 1))

(define L2 (list (square 10 "solid" "black")
  (circle 30 "outline" "black")
  (rectangle 25 100 "solid" "green")))

(define L3 (list "birds" "fly" "fish" "swim" "and" "students" "think"))
; Show the result value of each of the following expressions:

; B1.  
(filter multiple-of-20? L1)

; B2.  
(length (filter over-26? L2))

; B3.  
(filter over-4? L3)