; ● CSC104 Winter 2020 Exercise #1 ●

; Print this out and fill it in by hand. Hand in your solutions to the TA at the start of your quiz.

; UTorID :	
; Surname :	
; Given Name :	

; Precision and care are crucial in programming, and we assume you check your exercise answers in DrRacket.
; Your mark will reflect the care you took to make sure your answers are all, or almost all, correct.

; ● Part A. Circle each of the following twelve pieces of code that reports an error (rather than produces a value) ...

(beside-top)

(+ 1 (2 - 3) 4)

(small)

(anti-clockwise ( ))

(* 1 2 (- 3) 4)

(above-right ( ))

(scale-height .5)

(above)

(tall)

(beside)

(turn ( ) .5)

(beside-top)

; ● Part B. Show all the steps to evaluate the following expression.

; You do not need to include the "● Steps ●", "○", nor "•" punctuation that DrRacket shows when using step .
; Include the underlining of sub-expressions that will change.
; In DrRacket, the step operation starts by copying the given expression so that it can add some underlining,
; but you may save some effort by adding the initial underlining directly to the original expression.

```
(mirror (beside (clockwise (tall (solid-triangle (/ 150 10))))
                (turn (above (circle (+ 0 40 (- 10)))
                             (square (- 30 15)))
                      (+ (* 2 1 5) (* (height (wide (circle 10))) 3) 5))))
```

```
; ● Part C. Beside each of the following expressions, write its value ...

unary?

-123

circle

width

45

number?

*

#true

turn

(function? -67)

(image? square)

(boolean? )

(function? rectangle)

(number? height)

(number? +)

(function? /)

(image? image?)

(function? function?)

(boolean? image?)

(boolean? boolean?)

(image? )

(boolean? #false)

(function? boolean?)

(number? -89)

(image? #true)

(unary? scale-height)

(binary? solid-oval)

(binary? -)

(unary? binary?)
```

```
; ● Part D. Show all the steps to evaluate the following expressions.
; Include the underlining of sub-expressions that will change.

; You do not need to include the "● Steps ●", "○", nor "•" punctuation that DrRacket shows when using step .

; In DrRacket, the step operation starts by copying the given expression so that it can add some underlining,
;  but you may save some effort by adding the initial underlining directly to the original expression.

(image? (+ 1 2 3))



(number? (circle 10))



(boolean? (- 45))



(function? (flip △))



(image? (rectangle 20 10))



(number? (/ 10 2))



(boolean? (unary? beside-top))



(function? (image? 12))



(image? (image? mirror))
```

; ● Part E.
; For each definition, circle either “Function” or “Variable” according to whether it is a function definition or a variable definition.
; If it defines a variable, write down the variable name.
; If it defines a function, write down the function name and parameter names.

```
(define (s z y)
  (text-join z y))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define (b d c) (above d c (turn d 45)))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define f
  (text-join
   b
   "b"))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define i (square 10 "solid" "black"))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define x
  (b i j))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define
  rick
  "rick")
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define
  (%-width an-image %)
  (* (/ % 100)
     (width an-image)))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define sun (scale
```

```
                   3))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define bottom (remove-bottom kids
                              (+ 1 (/
                                    (height kids)
                                    2))))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define (x g)
  (turn (above x x)
        45))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define (i raise)
  (above i (flip (triangle (width i)))))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define another-good-number
  (* 2 52))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

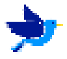
```
(define (remove-bottom an-image
                       a-bottom)
  (image-top an-image (- (height an-image)
                         (height a-bottom))))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define (scaled-bird
         amount)
  (scale
```



```
         amount))
```

; Defines a ... Function Variable

; Variable or Function Name:

; Parameter Names (if any):

```
(define (b x y) (+ (text-length y)
                   x))
```

; Defines a: Function Variable

; Variable Name (if applicable):

; Variable or Function Name:

; Parameter Names (if any):