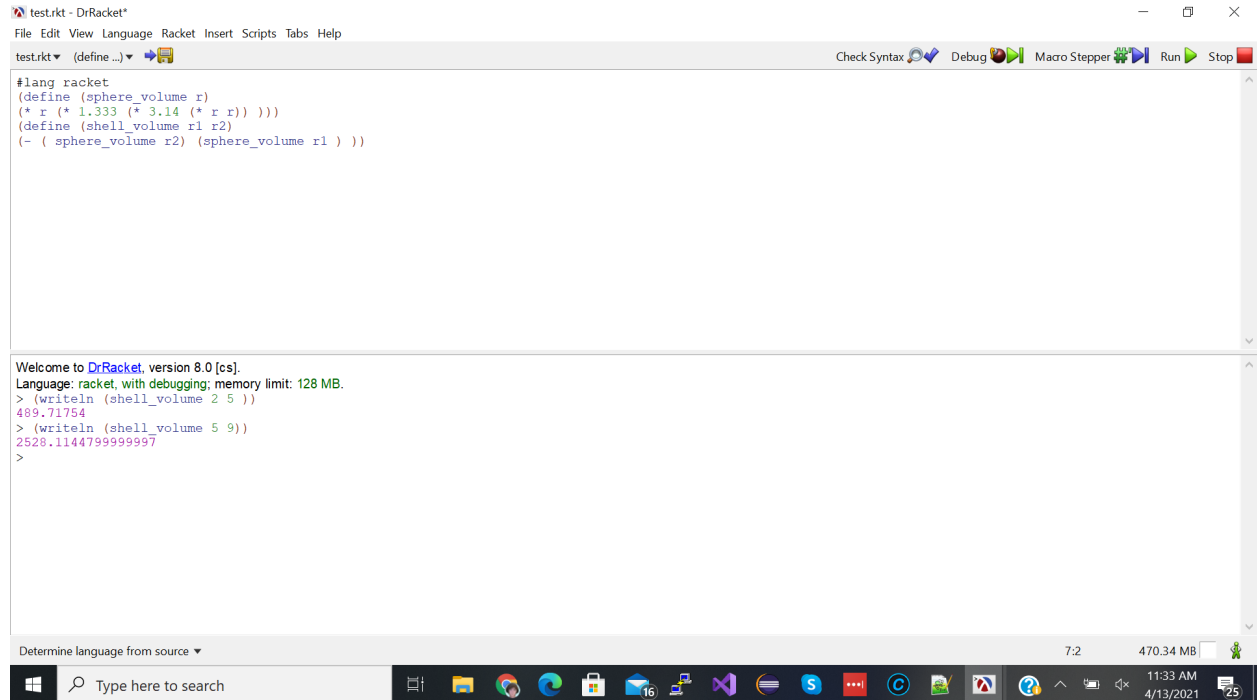


PL-hw 2

Test cases and outputs

1)



The screenshot shows the DrRacket IDE interface. The top menu bar includes File, Edit, View, Language, Racket, Insert, Scripts, Tabs, and Help. The toolbar contains icons for Check Syntax, Debug, Macro Stepper, Run, and Stop. The main text area contains the following Racket code:

```
#lang racket
(define (sphere_volume r)
  (* r (* 1.333 (* 3.14 (* r r) )))
  )
(define (shell_volume r1 r2)
  (- (sphere_volume r2) (sphere_volume r1) ) )
```

The bottom panel shows the output of the code. It starts with a welcome message: "Welcome to DrRacket, version 8.0 [cs]. Language: racket, with debugging; memory limit: 128 MB." followed by two interactive prompts and their results:

```
> (writeln (shell_volume 2 5))
489.71754
> (writeln (shell_volume 5 9))
2528.1144799999997
>
```

The status bar at the bottom indicates the language is determined from the source, the current time is 7:2, and the memory usage is 470.34 MB. The Windows taskbar is visible at the very bottom.

2)

test.rkt - DrRacket*

File Edit View Language Racket Insert Scripts Tabs Help

test.rkt (define ...) [Run] [Check Syntax] [Debug] [Macro Stepper] [Run] [Stop]

```
#lang racket
(define (close num1 num2 limit)
  (<= (abs (- num1 num2)) limit))

(close 4.567 4.567 0.001)
(close 4.456 4.459 0.001)
```

Welcome to [DrRacket](#), version 8.0 [cs].
Language: racket, with debugging; memory limit: 128 MB.

#t
##f
>

Determine language from source ▼ 5:2 479.20 MB

Type here to search

3)

test.rkt - DrRacket*

File Edit View Language Racket Insert Scripts Tabs Help

test.rkt (define ...) [Run] [Check Syntax] [Debug] [Macro Stepper] [Run] [Stop]

```
#lang racket
(define (how-many a b c)
  (if (= a 0)
      (write "Equation is degenerate ")
      (if (> (* b b) (* 4 (* a c) ))
          (writeln " 2 solutions")
          (if (= (* b b) (* 4 (* a c) ))
              (writeln " 1 solution ")
              (writeln " no solution"))
      )))
```

Welcome to [DrRacket](#), version 8.0 [cs].
Language: racket, with debugging; memory limit: 128 MB.

```
> (how-many 1 0 -1)
" 2 solutions"
> (how-many 2 4 2)
" 1 solution "
> |
```

Determine language from source ▼ 7:2 475.56 MB

Type here to search

4)

The screenshot shows the DrRacket IDE window titled "test.rkt - DrRacket*". The menu bar includes File, Edit, View, Language, Racket, Insert, Scripts, Tabs, and Help. The toolbar contains icons for Check Syntax, Debug, Macro Stepper, Run, and Stop. The editor area contains the following Racket code:

```
#lang racket
(define (filter-out-symbol ls symbol)
  (filter (lambda (x) (not (equal? x symbol))) ls))

(filter-out-symbol '(1 2 4 3 4 2 4) '4)
(filter-out-symbol '(no no a thousand times no) 'no)
```

The output area displays the following text:

```
Welcome to DrRacket, version 8.0 [cs].
Language: racket, with debugging; memory limit: 128 MB.
'(1 2 3 2)
'(a thousand times)
> |
```

The status bar at the bottom shows "Determine language from source", "5:2", "481.09 MB", and the system clock "11:52 AM 4/13/2021".

5)
N/A

6)

The screenshot shows the DrRacket IDE window titled "test.rkt - DrRacket*". The menu bar includes File, Edit, View, Language, Racket, Insert, Scripts, Tabs, and Help. The toolbar contains icons for Check Syntax, Debug, Macro Stepper, Run, and Stop. The editor area contains the following Racket code:

```
#lang racket
(define ((incnth a) n) ; : ; function
  (+ a n))

(writeln ((incnth 2) 3))
(writeln ((incnth 10) 15))
```

The output area displays the following text:

```
Welcome to DrRacket, version 8.0 [cs].
Language: racket, with debugging; memory limit: 128 MB.
5
25
> |
```

The status bar at the bottom shows "Determine language from source", "5:2", "473.83 MB", and the system clock "10:39 PM 4/13/2021".