1 Code

```
; Define the navigate function
(define (navigate num path)
  (define result (find_helper num path))
  (cond
   ((null? result)
     (cons 'not (cons 'found: (cons num '()))))
   )
   (else (cons 'found: result))
  )
)

; Helper function that recursively finds the destination node
(define (find_helper dest path)
  (cond
    ((null? path) '()) ; Test if path is empty
    ((eq? dest (car path)) (cons dest '()))  ; Test if node value equals
       destination
    ((< dest (car path)) ; Take right turn (Left sub-tree)
      (cond
        ((null? (find_helper dest (cadr path))) '())
        (else (cons (car path) (cons 'R (find_helper dest (cadr path)))))
      )
    )
    ((> dest (car path)) ; Take left turn (Right sub-tree)
      (cond
        ((null? (find_helper dest (caddr path))) '())
        (else (cons (car path) (cons 'L (find_helper dest (caddr path)))))
     )
    )
  )
)

; Store tree in variable
(define path '(73 (49 (15 (10 () ()) (20 (17 () ()) (30 () (42 () ()))))
    (53 () (64 () ()))) (134 (133 (94 (82 (75 () ()) ()) (108 (103 () ())
    (110 () ()))) ()) (135 () (136 () (152 (141 () ()) ()))))))

; Run the navigate function
(navigate 42 path)
(navigate 141 path)
(navigate 103 path)
(navigate 81 path)
(navigate 73 path)
```

2 Output

```
Welcome to Racket v5.1.1.
> > > > (found: 73 R 49 R 15 L 20 L 30 L 42)
> (found: 73 L 134 L 135 L 136 L 152 R 141)
> (found: 73 L 134 R 133 R 94 L 108 R 103)
> (not found: 81)
> (found: 73)
>
```

3 README

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How to run the program:
`mzscheme < navigator.rkt`

What works what doesn't:
My program successfully handles finding nodes that are located at position in tree (Include the root). It also handles the case where the desired node doesn't exist. To modify the tree where the search is performed just change the definition of the path variable