

Quiz 2 Solutions

Problem 1:

(1 2 3)
(4 1 2 3)
(1 2)
(5 1 2)

Problem 2:

0
1
(x y z)
((x y z) z)

Problem 3:

#f #f #f
#t #t #t
#t #t #t
#f #f #t
#f #f #t

Problem 4:

<1> P2
<2> L1
<3> E1
<4> GE
<5> E1
<6> x
<7> E3
<8> 0
<9> 10
<10> E1
<11> 10
<12> GE
<13> P1
<14> P3

7

Problem 5:

```
(tree-manip test-tree
  0
  (lambda (x) 1)
  car
  cdr
  +)

(tree-manip test-tree
  1
  (lambda (x) x)
  car
  cdr
  *)

(tree-manip test-tree
  nil
  (lambda (x) (list x))
  cdr
  car
  append)
```

Problem 6:

The complete new version of the procedure is as follows. Changes are marked in bold face type.

```
(define (make-account balance password)
  (define (withdraw amount)
    (if (>= balance amount)
        (begin (set! balance (- balance amount))
                balance)
        "Insufficient funds"))
  (define (deposit amount)
    (set! balance (+ balance amount))
    balance)
  (define (dispatch p m)
    (cond ((not (equal? p password))
           (lambda (x) "Invalid password"))
          ((eq? m 'withdraw) withdraw)
          ((eq? m 'deposit) deposit)
          ((eq? m 'balance) balance)
          (else (error "Unknown request - MAKE-ACCOUNT" m))))
  dispatch)
```