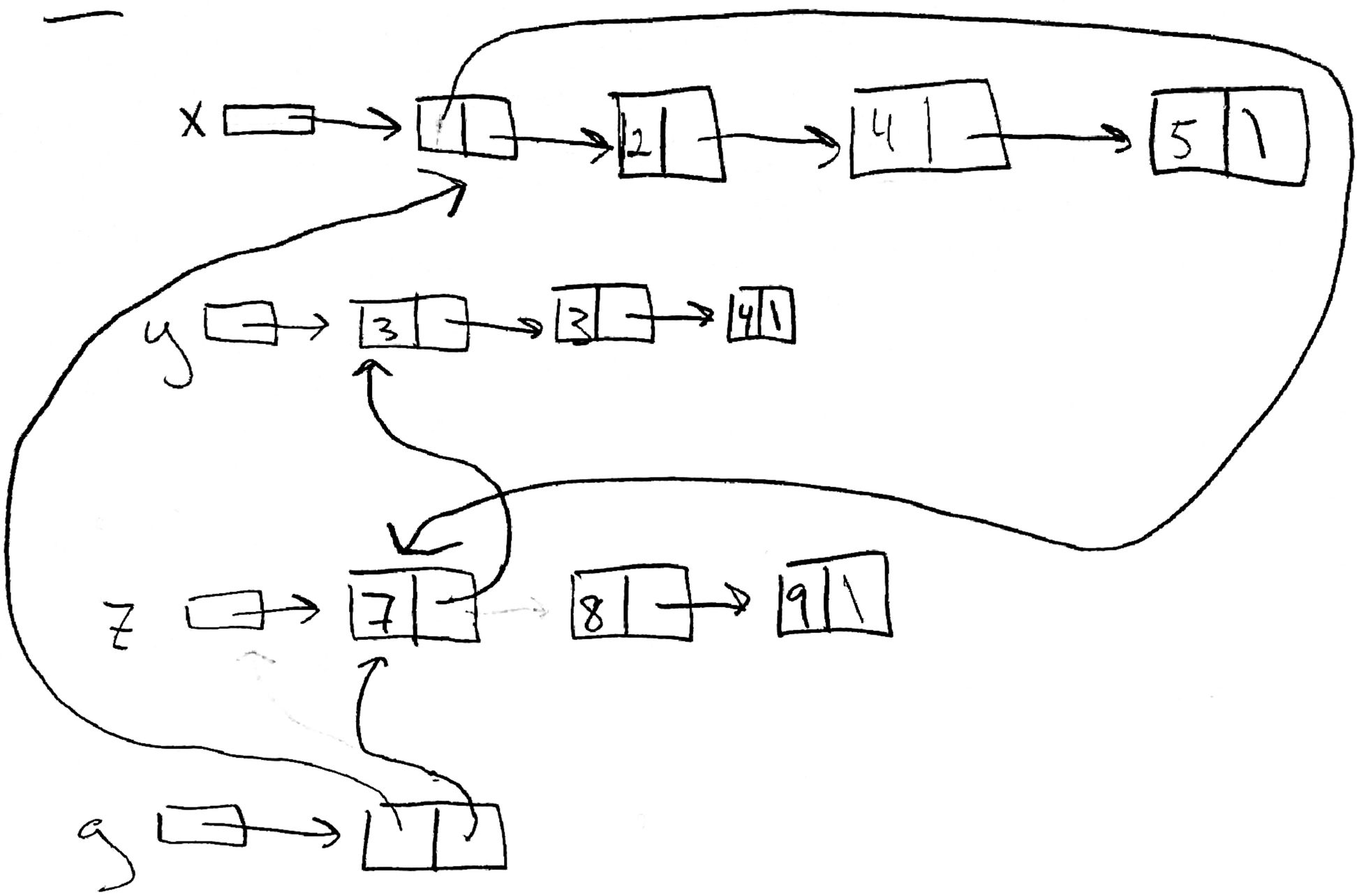
Problem 1

1) Show the box and pointer diagrams for the following operations and the result.

```
(define x '(1 2 4 5))
(define y '(3 3 4))
(define z '(7 8 9))
(define g (cons x z))
(set-car! x z)
(set-cdr! z y)
```

A1



x: ((7 3 3 4) 2 4 5)

y: (3 3 4)

z: (7 3 3 4)

g: (((7 3 3 4) 2 4 5) 7 3 3 4)

Problem 2

Find the result of

(apply (call/cc (lambda (k) (lambda (x.y) (if x 4 (k, cons)))))

#f '(14))

A2)

Γ_1: (lambda (k) (λ(x.y) ...))

k_1: (λ (v) (apply v #f '(14)))

(Γ_1, k_1)

(apply (lambda (x.y) (if x 4 (k_1 cons))) #f '(14))

↓

(k_1 cons) → (apply cons #f '(14)) ⟹ '(#f 14)