

Problem 1:

Definition (list of square numbers, bottom-up):

1. Lst = list of all real numbers from 0 to n, and
2. $x \in \text{lst}, y \in \text{lst}$; and $x = 0$ and $y = 0$ then,
3. If $(x+y)^2 = x^2$, then x and $y+1 = X2$.

$$(0+0)^2 = 0$$

$$(0+1)^2 = 1$$

$$(1+1)^2 = 4$$

$$(1+2)^2 = 9$$

$$(2+2)^2 = 16$$

$$(2+3)^2 = 25$$

$$(3+3)^2 = 36$$

Problem 2:

Problem 3:

Problem 4:

```
(define (isIn?-nested lst value) (cond ((null? lst) #f)
                                         ((list? (car lst)) (if (isIn?-nested (car
lst) value)
                                                                #t
                                                                (isIn?-nested (cdr
lst) value))))
                                         ((= (car lst) value) #t)
                                         (else (isIn?-nested (cdr lst) value))))

(define (isIn? lst value) (cond ((null? lst) #f)
                                ((= (car lst) value) #t)
                                (else (isIn? (cdr lst) value))))

(define (myProc pred lst1 lst2 op init) (cond ((null? lst1) init)
                                                ((pred lst2 (car lst1)) (op
(car lst1) (myProc pred (cdr lst1) lst2 op init)))
                                                (else (myProc pred (cdr lst1)
lst2 op init))))
```