

```

1 #lang racket
2
3 (define (contains-h l n comp)
4   (cond
5     [(empty? l) #f]
6     [(comp (car l) n) #t]
7     [else (contains-h (cdr l) n comp)]))
8
9 (define (contains-1d l n)
10   (contains-h l n =))
11
12 (define (contains-2d l n)
13   (contains-h l n contains-1d))
14
15 (define (a-list a b comp-ls)
16   (cond
17     [(< b 2) (list)]
18     [else (begin
19               (define n (expt a b))
20               (cond
21                 [(contains-2d comp-ls n) (a-list a (- b 1) comp-ls)]
22                 [else (cons n (a-list a (- b 1) comp-ls))])]))])
23
24 (define (length-2d l)
25   (if (empty? l)
26       0
27       (+ (length (car l)) (length-2d (cdr l)))))
28
29 (define (solve-h a accum b-max)
30   (cond
31     [(< a 2) (length-2d accum)]
32     [else (solve-h (- a 1)
33                     (cons
34                      (a-list a b-max accum)
35                      accum)
36                     b-max)]))
37
38 (define (solve max)
39   (solve-h max (list) max))
40
41 (solve 100)

```