

Pre-exercise.

```

(- 8 9) ==> -1

(> 3.7 4.4) ==> #f

(- (if (> 3 4) 7 10) (/ 16 10)) ==> 42/5

(define b 13) ==> b

13 ==> 13

b ==> 13

> ==> #[primitive-procedure X]

(define square (lambda (x) (* x x))) ==> square

square ==> #[compound-procedure X]

(square 13) ==> 169

(square b) ==> 169

(square (square (/ b 1.3))) ==> 10000

(define multiply-by-itself square) ==> multiply-by-itself

(multiply-by-itself b) ==> 169

(define a b) ==> a

(= a b) ==> #t

(if (= (* b a) (square 13))
    (< a b)
    (- a b))
==> #f

(cond ((>= a 2) b)
      ((< (square b) (multiply-by-itself a)) (/ 1 0))
      (else (abs (- (square a) b))))
==> 13

```

1. It is unclear what the desired behavior of `fold`, `spindle`, and `mutilate` should be.

2.

```

(define fact
  (lambda (n)
    (if (= n 0)
        1
        (* n (fact (- n 1))))))

(fact 243) ==> 57651072073405564859932599378988824389544612
              76974878528957851475379122666079544778795256178048966844
              06130289165034715222417036457679968106951352262782967426

```

```

37606115134300787052991319431412379312540230792060250137
08870881179442456483310708517346471898550899985879197060
94910660457118743215169181509054139447893771563152071869
98055591451670633898714567745386826936678840548225648089
96172787570544453816714281829286281216000000000000000000
00000000000000000000000000000000000000000000000000000

```

3.

```

(define comb
  (lambda (n k)
    (/ (fact n)
       (* (fact k)
          (fact (- n k))))))

```

```

(comb 243 90)  $\Rightarrow$  193404342391239489855973693417880600543891038618846567058277413638164

```

11. Their definition of Curried applications is not precise. It seems to include all applications of E , and thus a Curried application does not mean any different from ordinary applications.

```

(foo1 (sqrt 3))  $\Rightarrow$  approximately 3

```

```

(foo2 6 2)  $\Rightarrow$  3

```

```

((foo3 6) 2)  $\Rightarrow$  3

```

```

(foo4 (lambda (y) y))  $\Rightarrow$  3

```

```

((foo5 1))  $\Rightarrow$  3

```

```

(foo6 (lambda (z) 3))  $\Rightarrow$  3

```