アルゴリズムとデータ構造入門 第六回課題

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1 Section 1.35

```
1  (define tolerance 0.00001)
2
3  (define (fixed-point f first-gueses)
4    (define (close-enough? a b)
5      (> tolerance (abs (- b a))))
6    (define (try gueses)
7      (let ((next (f gueses)))
8        (if (close-enough? gueses next)
9            gueses
10           (try next))))
11   (try first-gueses))
```

出力結果
(display (fixed-point (lambda (x)
(+ 1 (/ 1 x))
) 1.0))
=> 1.6180371352785146

2 Section 1.41

```
1  (define double (lambda (f)
2          (lambda (x)
3                  (f (f x))
4          )
5  ))
```

```
6
7 (define inc (lambda (x)
8         (+ x 1)
9 ))
```

出力結果
(display (((double (double double)) inc) 5))
=> 21

3 Section 1.42

```
1 (define square (lambda (x)
2         (* x x)
3 ))
4
5 (define inc (lambda (x)
6         (+ x 1)
7 ))
8
9 (define compose (lambda (f g)
10         (lambda (x)
11                 (f (g x))
12         )
13 ))
```

出力結果
(display ((compose square inc) 6))
=> 49

4 Section 1.43

```
1 (load "1.42.scm")
2
3 (define repeated (lambda (f n)
4         (define prod (lambda (nthf count)
5                 (if (<= count 1) nthf
6                         (prod (compose nthf f) (- count 1))
7                 )
```

```
8           ))
9           (prod f n)
10  ))
```

出力結果
(display ((repeated square 2) 5))
=> 625