Exercise 1.39.

A continued fraction representation of the tangent function was published in 1770 by the German mathematician J.H. Lambert:

$$\tan x = \frac{x}{1 - \frac{x^2}{3 - \frac{x^2}{5 - \ddots}}}$$

where x is in radians. Define a procedure `(tan-cf x k)` that computes an approximation to the tangent function based on Lambert's formula. `K` specifies the number of terms to compute, as in exercise 1.37.

Answer.

Intuitively, we hope to build `(tan-cf x k)` upon a procedure `cont-frac` which resembles to that one in exercise 1.37.

```
(define (tan-cf x k)-
  (cont-frac (if (= k 1)
                 (lambda (i) x)
                 (lambda (i) (square x)))
             (lambda (i) (- (* 2 i) 1))
             k))

(define (cont-frac n d k)
  (define (rcf i)
    (if (= i k)
        (/ (n i) (d i))
        (- (d i)
           (rcf (+ i 1)))))
  (rcf 1))
```