

Excercise 1.7

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Evaluating the author's `good-enough?` procedure defined as

```
(define (good-enough? guess x)
  (< (abs (- (square guess) x)) 0.001))
```

yields the values:

```
(sqrt 9)
3.00009155413138
```

```
(sqrt (+ 100 37))
11.704699917758145
```

```
(sqrt (+ (sqrt 2) (sqrt 3)))
1.7739279023207892
```

```
(square (sqrt 1000))
1000.000369924366
```

Evaluating our `good-enough?` procedure defined as:

```
(define (good-enough? guess x)
  (< (abs (- (square guess) x))
      (/ guess 100000)))
```

yields the values:

```
(sqrt 9)
3.000000001396984
```

```
(sqrt (+ 100 37))
```

```
11.704699917758145
```

```
(sqrt (+ (sqrt 2) (sqrt 3)))  
1.7737718323432423
```

```
square (sqrt 1000))  
1000.0000000000343
```

Our procedure keeps approximating until the change is less than a very small fraction of the guess. Arbitrarily, this was chosen to be $1/100000$ of guess. For larger numbers, both procedures are similar. For smaller numbers, our procedure is more accurate.