Quiz 8 Solution

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1. What would **scheme_read** return?

```
(+ 2 3)
Pair('+', Pair(2, Pair(3, nil)))
'(1 2 3)
Pair('quote', Pair(Pair(1, Pair(2, Pair(3, nil))), nil))
(1 . 2)
Pair(1, 2)
3
3
(1 (2 3))
Pair(1, Pair(Pair(2, Pair(3, nil)), nil))
(1 . (3 2))
Pair(1, Pair(3, Pair(2, nil)))
('hi . 3 4)
SchemeError
```

2. Write a function **map** that is tail recursive. It should take in a list **lst** and a function **fn**, and apply the function onto every element in the list.

```
(define (map fn lst)
  (define (map-helper lst so-far)
    (if (null? lst) so-far
        (map-helper (cdr lst)
          (append so-far (list (fn (car lst)))))))
  (map-helper lst nil))

scm> (map (lambda (x) (* x x)) '(1 2 3 4))
(1 4 9 16)
```