Problems from “How to Solve Problems Using Scheme”
for Assignment 2*

1. Exercise 3 of Section 11.4
   Write a recursive procedure \(\text{one-to-n } n\) which takes an integer \(n\) and returns a list of the form \((1 2 \ldots n)\). For example:
   \[
   \text{(one-to-n 5)} \implies (1 2 3 4 5)
   \]

2. Exercise 5 of Section 11.4
   Write a recursive procedure \(\text{my-reverse } \text{lst}\) which returns a list containing the elements of \(\text{lst}\) in reverse order.

3. Exercise 8 of Section 11.4
   Write a recursive procedure \(\text{list-sums } \text{lst}\) which takes a list \(\text{lst}\) and returns a list where the \(k^{th}\) element is the sum of the first \(k\) elements of \(\text{lst}\). For example:
   \[
   \text{(list-sums '(1 4 9 -2 7))} \implies (1 5 14 12 19)
   \]

4. Exercise 10 of Section 11.4
   Write a recursive procedure \(\text{positions } \text{lst } e\) which returns a list of numbers corresponding to the position of every occurrence of element \(e\) in the list \(\text{lst}\). Assume the first element of the list is element 0. For example:
   \[
   \text{(positions '(a b f b a f b b) 'b)} \implies (1 3 6 7)
   \]

5. Exercise 2 of Section 12.4
   Write a non-recursive procedure \(\text{distance } \text{p } \text{q}\) using map and/or apply that returns the euclidean distance between the points \(\text{p}\) and \(\text{q}\) in an arbitrary dimension Euclidean space. For example:
   \[
   \text{(distance '(0 3) '(4 0))} \implies 5
   \]
   \[
   \text{(distance '(2 -8 7) '(-3 1 9))} \implies 10.488088
   \]

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