Problem 1 (20 points)
For the following RPAL program:

let (a = 2 within f x y = x eq 1 -> x + a | x + 1)
and g a b = a aug b
in g nil (f 3 4)

a) Draw the AST.
b) Transform the AST to the fully standardized tree.

Problem 2 (40 points)
For the following RPAL program:

let f n = n + 1 within g n = f(f(n)) in g 5

a) Draw the AST.
b) Transform the AST to the partially standardized tree.
c) Generate the control structures from the standardized tree.
d) Evaluate the program using the CSE machine.

Problem 3 (40 points)
For the following RPAL program:

let rec f n = n eq 1 -> 1 | n + f (n-2)
in f 5

a) Draw the AST.
b) Transform the AST to the partially standardized tree.
c) Generate the control structures from the standardized tree.
d) Evaluate the program using the CSE machine.