Lambda Calculus

Instructions:

Solutions of the exercises are to be delivered before Wednesday, the 12th of April at 10:15AM.
Solutions should be placed in a separate folder with the name "**Assignment05**".
Please submit answers to all the exercises in **one** text file.

Exercise 1 (2 points)

Consider the following λ-expressions. Indicate which occurrences of variables are bound and which ones are free in the expressions.

1. `(λ x . x) y (λ y . y x) x`
2. `((λ x . λ y . λ z . x y z ) (λ x. y x) y) (λ x . z x)`

Exercise 2 (2 points)

Define boolean functions `and` and `or` in Lambda Calculus and show that `True and False = False` and `True or False = True` based on the definitions of `True` and `False` functions from the lecture hours.

Exercise 3 (2 points)

Reduce the following λ-expressions to their normal form where possible.

1. `(λ x. (λ z . z y) x )(λ x . x)`
2. `(λ x. x x y)(λ x . x x y)`