1. (Functional Programming, 6pts)

(a) (2 pts) What is a closure?

Consider the following OCaml function:

\[ \text{mult} \, x \, y = x * y \]

(b) (4 pts) Show the evaluation of \text{mult} \, 2 \, 3, \text{ including any closures.}
2. (OCaml Types and Type Inference, 6pts)

(a) (4 pts) Give the types of the following OCaml expressions

(i) let f x = if x 3.14 else 9.81

TYPE =

(ii) [[1;2;3];[4;5;6]]

TYPE =

(b) (2 pts) Write an OCaml expression with the type int*int -> int.

3. (OCaml Programming, 8pts)

Using fold (given below) and an anonymous function, write a function getMax that, when applied to a list of ints lst will return the element with the maximum value.

Example: getMax [2;5;39;12;46;22] = 46

let rec fold f a l = match l with
  [] -> a |
  (h::t) -> fold f (f a h) t