

III Constante globale, constante locale, références

Exercice 1

Déterminer le résultat de l'évaluation des instructions suivantes :

```
- : int = 5

- : int = 6

Error: This expression has type 'a * 'b
      but an expression was expected of type 'c * 'd * 'e

- : bool = true

Error: Syntax error

- : int * int * float = (1, 2, 3.)
```

VI Fonctions

Exercice 2

```
val f : ('a -> int) -> ('a -> int) -> 'a -> int = <fun>

val f : ('a -> 'b) -> ('c -> 'a) -> 'c -> 'b = <fun>

val f : 'a -> 'b -> int * int -> int = <fun>

val f : ('a -> 'a) -> int -> 'a -> 'a = <fun>
```

Exercice 3

```
let f1 f (x : float) = (f x) /. 2.;;

let f2 f x : int = f (x + 1);;

let f3 f x = f (x * x) + (f x) * (f x);;
```

Exercice 4

```
let maximum t =  
  let n = Array.length t in  
  let a = ref t.(0) in  
  for i = 1 to n - 1 do  
    if t.(i) > !a then  
      a := t.(i)  
  done;  
  !a;;  
  
let indice_max t =  
  let n = Array.length t in  
  let imax = ref 0 in  
  for i = 1 to n - 1 do  
    if t.(i) > t.(!imax) then  
      imax := i  
  done;  
  !imax;;
```

Exercice 5

```
let miroir s =  
  let n = String.length s in  
  let s' = String.make n s.[0] in  
  for i = 0 to n - 2 do  
    s'.[i] <- s.[n - 1 - i]  
  done;  
  s';;  
  
let palindrome s = miroir s = s;;
```

Exercice 6

```
let rec puissance a = function  
  | 0 -> 1  
  | n -> a * (puissance a (n - 1));;
```