



課題 1.1

```
let numRoots (a, b, c) =  
  let d = b *. b -. 4.0 *. a *. c in  
  if d > 0. then 2 else if d = 0. then 1 else 0;;  
  numRoots(2.0, 4.0, -4.0);; numRoots(1.0, 2.0, 1.0);;  
  numRoots(1.0, 2.0, -1.0);; numRoots(1.0, 0.0, 1.0);;
```

実行結果

```
val numRoots : float * float * float -> int = <fun>  
- : int = 2  
- : int = 1  
- : int = 2  
- : int = 0
```

課題 1.2

```
let min2time input =  
  let day = input / (24*60) in  
  let hour = (input - (24*60)*day) / 60 in  
  let min = (input - (24*60)*day - 60*hour) in  
  (day, hour, min);;  
min2time 1510;;  
  
let time2min (day, hour, min) = day*24*60 + hour*60 + min;;  
time2min (1,1,1);;  
  
let timeSum ((day1, hour1, min1), (day2, hour2, min2)) =  
  min2time ( time2min(day1, hour1, min1) + time2min(day2, hour2, min2) );;  
timeSum ((1,10,30), (4,20,20));;
```

実行結果

```
val min2time : int -> int * int * int = <fun>  
- : int * int * int = (1, 1, 10)  
val time2min : int * int * int -> int = <fun>  
- : int = 1501
```

```
val timeSum : (int * int * int) * (int * int * int) -> int * int * int
= <fun>
- : int * int * int = (6, 6, 50)
```

課題 1.3

```
let rec fib n =
  if n = 0 then 0
  else if n = 1 then 1
  else fib(n-2) + fib(n-1);;
fib(10);;
```

実行結果

```
val fib : int -> int = <fun>
- : int = 55
```

課題 1.4

```
let rec power (x,k) =
  if k = 0 then 1
  else if k = 1 then x
  else x * power(x, k-1);;
power(2,10);;
```

```
let rec power (x,k) =
  if k = 0 then 1
  else if k = 1 then x
  else if k mod 2 = 0 then power(x*x, k/2)
  else x * power(x*x, (k-1)/2);;
power(2,10);; power(2,11);;
```

実行結果

```
val power : int * int -> int = <fun>
- : int = 1024

val power : int * int -> int = <fun>
- : int = 1024
- : int = 2048
```