COMP6010 Practical Week 2

1. Convert the following decimal numbers to Base-2 and Base-8 numbers respectively

(a) 123

ANS: (https://madformath.com/calculators/basic-math/base-converters/base-converters)

RESULT

$(123)_{10} = (1111011)_2$

DESCRIPTIONS

Divide the number repeatedly by 2 until the quotient becomes 0.

		Remainders
2	123	1 ↑
2	61	1
2	30	0
2	15	1
2	7	1
2	3	1
2	1	1
	0	

(b) 2784

ANS:

RESULT

$(2784)_{10} = (101011100000)_2$

(c) 86910

ANS:

RESULT

$(86910)_{10} = (10101001101111110)_2$

2. Convert the following binary numbers to decimal numbers.

(1) 1010

ANS:

RESULT

$(1010)_2 = (10)_{10}$

(2) 1101001

ANS:

RESULT

$(1101001)_2 = (105)_{10}$

3. Given a non-negative integer n, calculate its last digit.

ANS: n%10

4. Given a negative integer n, calculate its last digit (note -11 mod 7 = 3 because −11 = 7(−2) + 3).

ANS: 10 - n%10, or, abs(n)%10

5. Given an integer n, get it is second last digit, and its first digit.

ANS:

```
import math

n = 123

print(abs(n)%10)

print(pow(10, (int)(math.log10(abs(n)))))
```

6. Given a string, output its first character and last character.

ANS:

```
str[0]

str[-1]
```

7. Given a string ‘Hello World’, output the two words separately.

ANS:

```
str = 'Hello World'

print(str[:str.index(' ')+1]) # method 1

print(str[str.index(' ')+1:])

list = str.split(' ') # method 2

print(list[0])

print(list[1])
```