



4.1.1 Arithmetic Operations

1) State what the following operators do:

- | | |
|--------------------|---|
| a) <code>**</code> | Exponentiation // raises one number to the power of another; |
| b) <code>//</code> | Integer division // divides and returns the whole-number part of the result; |
| c) <code>*</code> | Multiplication; |
| d) <code>/</code> | Real/float division // divides and returns the result as a real/float value; |
- [4 marks]**

2) Explain the difference between rounding and truncation. Give examples in your answer.

[2 marks]

- **Rounding changes a value to the nearest whole number, depending on the decimal part. Example: `round(4.7)` gives 5;**
- **Truncation removes the decimal part without rounding. Example: `int(7.9)` gives 7;**

Marking note:

Must give an explanation and example for each mark

3) The program shown in Figure 1 using modulus to determine if a number is even.

Figure 1

```
number = 12
if number % 2 == 0:
    print("Even")
```

a) Explain why the condition `number % 2 == 0` determines whether number is even.

[2 marks]

- **The `%` operator gives the remainder after division;**
- **An even number divided by 2 has a remainder of 0, so the condition is True for even numbers;**

b) Write a condition using modulus that would determine if number as odd.

[1 mark]

- **`number % 2 == 1 // number % 2 != 0;`**

