

Computer Laboratory - lab sheet 2

Task 1

Copy the program given below. Save (as `lc.cpp`), compile and run it.

```
// Length Converter
// converts a given length in meter (m)
// into: mm, cm, dm, ft, yd and in.
#include <iostream>
using namespace std;

#define FT 3.280839895013 // foot
#define YD 1.093613298338 // yard

int main()
{
    double x;

    const double IN = 1.0e+2/2.54; // inch
    enum { MM = 1000, CM = 100, DM = 10 };

    cout << "Input a length in meters: ";
    cin >> x;

    cout << "This length is " << endl;
    cout << x*MM << " mm" << endl;
    cout << x*CM << " cm" << endl;
    cout << x*DM << " dm" << endl;
    cout << x*IN << " inch" << endl;
    cout << x*FT << " foot" << endl;
    cout << x*YD << " yard" << endl;

    return 0;
}
```

Task 2

i) Write a program to compute the result of the equation:

$$z = \frac{x^3 + 2y - 4}{y + 5}$$

where x and y are input of type `double` and z is the output.

ii) Test your program with the values in the table given below.

| x | y | z |
|-----|-----|---------|
| --- | --- | ----- |
| 11 | 22 | 50.7778 |
| 0 | 0 | -0.8 |
| 8 | -5 | inf |

Task 3

For the given circuit, write a C++ program to input the potential difference between points a and b (V_{ab}) and to output the current passing through each resistor.

In the program, using `const` keyword define the resistances which are assumed to be $R_1 = 1 \text{ k}\Omega$, $R_2 = 2 \text{ k}\Omega$ and $R_3 = 3 \text{ k}\Omega$.

.....

An example output is given below:

```
Input potential difference, Vab: 150
Calculated currents in Ampere
i1 = 0.0272727
i2 = 0.0136364
i3 = 0.0409091
```

