Task 1
Copy the program given below. Save (as lc.cpp), compile and run it.

```cpp
// 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.

<table>
<thead>
<tr>
<th>( x )</th>
<th>( y )</th>
<th>( z )</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>22</td>
<td>50.7778</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>-0.8</td>
</tr>
<tr>
<td>8</td>
<td>-5</td>
<td>inf</td>
</tr>
</tbody>
</table>

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

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 \( R_1 = 1 \, \text{k}\Omega, \quad R_2 = 2 \, \text{k}\Omega \) and \( R_3 = 3 \, \text{k}\Omega \).

An example output is given below:

Input potential difference, \( V_{ab} \): **150**
Calculated currents in Ampere
\( i_1 = 0.0272727 \)
\( i_2 = 0.0136364 \)
\( i_3 = 0.0409091 \)