Computer Laboratory - lab sheet 4

Task 1

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

```
// Grade calculator
#include <iostream>
#include <string>
using namespace std;

int main()
{
  int mt1, mt2, fin;
  cout << "Enter the three exam scores: ";
  cin >> mt1 >> mt2 >> fin;

  double avr = 0.3*mt1 + 0.3*mt2 + 0.4*fin;
  cout << "The weighted score is " << avr << endl;

  string grade;
  if (avr <  40. ) grade = "FF";
  else if (avr >= 40. && avr < 50.) grade = "FD";
  else if (avr >= 50. && avr < 60.) grade = "DD";
  else if (avr >= 60. && avr < 70.) grade = "DC";
  else if (avr >= 70. && avr < 75.) grade = "CC";
  else if (avr >= 75. && avr < 80.) grade = "CB";
  else if (avr >= 80. && avr < 85.) grade = "BB";
  else if (avr >= 85. && avr < 90.) grade = "BA";
  else grade = "AA";

  cout << "The grade is " << grade << endl;

  return 0;
}
```

Task 2

Copy the program given below. Save (as `calculator.cpp`), compile and run it. Rewrite it using `else if`.

```
// Basic calculator
#include <iostream>
using namespace std;

int main(){
  char op;
  double x, y;

  cout << "Input first number : "; cin >> x;
  cout << "Input an operator  : "; cin >> op;
  cout << "Input second number: "; cin >> y;

  switch( op ){
    case '+': cout << "           sum = " << x + y << endl; break;
    case '-': cout << "    difference = " << x - y << endl; break;
    case '*': cout << "multiplication = " << x * y << endl; break;
    case '/': cout << "         ratio = " << x / y << endl; break;
    default : cout << "undefined operator: " << op << endl;
  }
  return 0;
}
```

Task 3

A composite function is shown in Figure. Write a program to input a value x and output the evaluated function y = f(x). Verify that your programs work correctly by testing it with appropriate inputs.