# Introduction to Computers and Programming

## Homework 2

2023/09/19

## 1. Deadline

You have one week to complete the homework. Hand in your homework via E3 before 2023/09/26 23:55. Please finish your homework as soon as possible. In addition, make sure that your code can be executed on Visual Studio Community 2019.

## 2. Problems

## 2.1 Triangle classification

As we all know, there are some basic triangle properties, such as:

- The sum of the length of the two sides of a triangle is greater than the length of the third side.
- If c denotes the length of the hypotenuse and a and b denote the two lengths of the legs of a right triangle, then the Pythagorean theorem can be expressed as the Pythagorean equation: $a^2 + b^2 = c^2$

In this assignment, you need to input three positive integers representing three sides. And based on the properties mentioned above, do the following steps:

- Check if the three sides can form a triangle.

If the inputs can form a triangle:

- Check whether the triangle is right, obtuse or acute.
- Check whether the triangle is equilateral, isosceles or scalene.

**Input**
The line contains three **positive integers a, b, c**, representing three sides (integers are not entered in order).

**Output**
Print out lines to tell **if the inputs can form a triangle**, and also check **which kinds of triangle they can form**. Note that some of the categories may be overlapping.

**<u>Example 1:</u>**
**Input**
10 10 10

**Output**
10 10 10 can form a triangle.
10 10 10 can form an acute triangle.
10 10 10 can form an equilateral triangle.
10 10 10 can form an isosceles triangle.

**<u>Example 2:</u>**
**Input**
1 2 3

**Output**
1 2 3 cannot form a triangle.

## 2.2 Buy pens

The final exams are approaching, Andy has decided to use the remaining class funds of x dollars to purchase a number of pens as rewards for some high-achieving and well-behaved students. It is known that there are **three types of pens** available in the store, with **prices of 6 dollars, 5 dollars, and 4 dollars each**. Andy wants to **buy as many pens as possible** (to encourage as many students as possible) while ensuring that there is no remaining money. Please write a program to help Andy come up with a purchasing plan for the pens.

**Input**
The input will contain a non-negative integer $N$ ($N \leqq 100$ & $N \geqq 4$ & $N \mathrel{!}= 7$).

**Output**
For each test case, output a line contains one number which is the total number for all entries.

**Example 1:**
**Input**
10

**Output**
2

**Example 2:**
**Input**
35

**Output**
8

**Example 3:**
**Input**
100

**Output**
25