# Homework: Math for Developers

This document defines homework assignments from the [“C# Basics“ Course @ Software University](http://softuni.bg/courses/csharp-basics/). Please submit as homework a single txt/doc/docx file holding the answers of all below described problems.

## Some Primes

Find the 24th, 101st and 251st prime number.

The 24th is 89

The 101st is 547

The 251st is 1597

## Some Fibonacci Primes

Check if the 24th, 101st and 251st prime numbers are part of the base Fibonacci number set. What is their position?

The 24th ( 89) is the 11th Fibonacci number

The 101st (547) isn’t part of the base Fibonacci number set

The 251st (1597) is the 17th Fibonacci number

## Some Factorials

Find 100!, 171! and 250! Give all digits.

100! = 9332621544394415268169923885626670049071596826438162146859296389 5217599993229915608941463976156518286253697920827223758251185210 916864000000000000000000000000

171! = 1241018070217667823424840524103103992616605577501693185388951803611996075221691752992751978120487585576464959501670387052809889858690710767331242032218484364310473577889968548278290754541561964852153468318044293239598173696899657235903947616152278558180061176365108428800000000000000000000000000000000000000000

250! = 3232856260909107732320814552024368470994843717673780666747942427112823747555111209488817915371028199450928507353189432926730931712808990822791030279071281921676527240189264733218041186261006832925365133678939089569935713530175040513178760077247933065402339006164825552248819436572586057399222641254832982204849137721776650641276858807153128978777672951913990844377478702589172973255150283241787320658188482062478582659808848825548800000000000000000000000000000000000000000000000000000000000000

## Calculate Hypotenuse

You are given three right angled triangles. Find the length of their hypotenuses.

1. Catheti: 3 and 4

Hypotenuse is 5

1. Catheti: 10 and 12

Hypotenuse is 15,620499351813308788259445471518

1. Catheti 100 and 250

Hypotenuse is 269,25824035672520156253552457702

## Numeral System Conversions

Convert 1234d to binary and hexadecimal numeral systems.

1234d = 10011010010b

1234d = 4D2hex

Convert 1100101b to decimal and hexadecimal numeral systems.

1100101b = 101d

1100101b = 65hex

Convert ABChex to decimal and binary numeral systems.

ABChex = 2748d

ABChex = 101010111100b

## Least Common Multiple

Find LCM(1234, 3456).

LCM (1234, 3456) = 2132352

**РЕШЕНИЯ:**

Задача 1

Търсените прости числа не трябва да са четни, не трябва да завършват на 5 или 0, сборът от цифрите не трябва да е кратно на 3. Останалите числа ги проверяваме. Иначе отговорът го взех оттук:

<http://www.di-mgt.com.au/primes1000.html>

Задача 2

Отговорът е оттук:

<http://primefan.tripod.com/500Primes1.html>

Задача 3

Отговорът е оттук:

<http://www.nitrxgen.net/factorialdb/>

Задача 4

Сметнато е на калкулатора на компа ми.

Задача 5

На ръка го сметнах. Тук може да се направи проверка:

<http://coolconversion.com/math/binary-octal-hexa-decimal/_hexadecimal__1234__binary_>

Задача 6

1234 | 2 3456 | 2

617 | 617 1728 | 2

1 864 | 2

432 | 2

216 | 2

108 | 2

54 | 2

27 | 3

9 | 3

3 | 3

1

1234 = 2x617 3456 = 27x33

LCM (1234,3456) = 27x33x617 = 2 132 352

Тук могат да се сметне LCM на повече от 2 числа

<http://www.calculatorsoup.com/calculators/math/lcm.php>