# Homework: Introduction to Mathematics

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.

24th  = 89;

– между 83 и 97, принадлежи на множеството на **Markov number,**  **Chen prime и Pythagorean prime.**

101st  = 547 ;

- между 541 и 557, принадлежи на множеството на  **Harshad number -** всички числа, кратни на 9

251st = 1597 ;

- между 1583 и 1601, принадлежи на множеството на **Fibonacci numbers(F17), Markov number**

<https://primes.utm.edu/nthprime/index.php#nth>

<http://en.wikipedia.org/wiki/>

## Some Fibonacci Primes

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

24th = 89 -> F11;

101st = 547 -> не принадлежи на **Fibonacci Primes**;

251st =1 597 -> F17;

## Some Factorials

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

100i = 933262154439441526816992388562667004907159682643816214685929  
638952175999932299156089414639761565182862536979208272237582  
51185210916864000000000000000000000000

171i = 124101807021766782342484052410310399261660557750169318538895  
180361199607522169175299275197812048758557646495950167038705  
280988985869071076733124203221848436431047357788996854827829  
075454156196485215346831804429323959817369689965723590394761  
615227855818006117636510842880000000000000000000000000000000  
0000000000

250i = 323285626090910773232081455202436847099484371767378066674794  
242711282374755511120948881791537102819945092850735318943292  
673093171280899082279103027907128192167652724018926473321804  
118626100683292536513367893908956993571353017504051317876007  
724793306540233900616482555224881943657258605739922264125483  
298220484913772177665064127685880715312897877767295191399084  
437747870258917297325515028324178732065818848206247858265980  
884882554880000000000000000000000000000000000000000000000000  
0000000000000

[http://www.numberempire.com/factorialcalculator.php](http://primefan.tripod.com/500Primes1.html)

## Calculate Hypotenuse

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

1. Catheti: 3 and 4 => c=5
2. Catheti: 10 and 12 => c== 15,620499351813308788259445471518
3. Catheti 100 and 250 => c== 269,25824035672520156253552457702

## Numeral System Conversions

Convert 1234d to binary and hexadecimal numeral systems.

**Binary – 10011010010**

**Hexadecimal - 4D2**

Convert 1100101b to decimal and hexadecimal numeral systems.

**Decimal - 101**

**Hexadecimal - 65**

Convert ABChex to decimal and binary numeral systems.

**Decimal - 2748**

**Binary – 101010111100**

<http://www.free-online-calculator-use.com/binary-to-hex-converter.html>

## Least Common Multiple

Find LCM(1234, 3456).

LCM of 1234 and 3456 is **2132352**

<http://www.wikihow.com/Find-the-Least-Common-Multiple-of-Two-Numbers>