# 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.

89, 547, 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?

34+55=89 = Fib (11), 547 is not Fibonacci number, 610+987=1597 = Fib (17)

## Some Factorials

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

100!=93326215443944152681699238856266700490715968264381621468592963895217599993229915608941463976156518286253697920827223758251185210916864000000000000000000000000

171!=1241018070217667823424840524103103992616605577501693185388951803611996075221691752992751978120487585576464959501670387052809889858690710767331242032218484364310473577889968548278290754541561964852153468318044293239598173696899657235903947616152278558180061176365108428800000000000000000000000000000000000000000

250!=3232856260909107732320814552024368470994843717673780666747942427112823747555111209488817915371028199450928507353189432926730931712808990822791030279071281921676527240189264733218041186261006832925365133678939089569935713530175040513178760077247933065402339006164825552248819436572586057399222641254832982204849137721776650641276858807153128978777672951913990844377478702589172973255150283241787320658188482062478582659808848825548800000000000000000000000000000000000000000000000000000000000000

## Calculate Hypotenuse

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

1. Catheti: 3 and 4

C=

1. Catheti: 10 and 12

C=

1. Catheti 100 and 250

C=

## Numeral System Conversions

Convert 1234d to binary and hexadecimal numeral systems.

1234/2=617 (0)

617/2=308 (1)

308/2=154 (0)

154/2=77 (0)

77/2=38 (1)

38/2=19 (0)

19/2=9 (1)

9/2=4 (1)

4/2=2 (0)

2/2=1 (0)

1/2=0 (1)

1234d =

1234/16=77 (2)

77/16=4 (D)

4/16=0 (4)

Convert 1100101b to decimal and hexadecimal numeral systems.

1100101b = =64+32+0+0+4+0+1=

101/16=6 (5)

6/16=0 (6)

1100101b = =

Convert ABChex to decimal and binary numeral systems.

ABChex =

2748/2=1374 (0)

1374/2=687 (0)

687/2=343 (1)

343/2=171 (1)

171/2=85 (1)

85/2=42 (1)

42/2=21 (0)

21/2=10 (1)

10/2=5 (0)

5/2=2 (1)

2/2=1 (0)

1/2=0 (1)

## Least Common Multiple

Find LCM(1234, 3456).

1234 3456 /2

617 1728 /1728

617 1 /617

1

617 is a prime number.

LCM=2\*1728\*617=2132352