# Homework: Math for Developers

This document defines homework assignments from the [“C# Basics“ Course @ Software University](http://softuni.bg/courses/csharp-basics/).

## Some Primes

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

**SOLUTION:**

**24th prime number – 89**

**101st prime number – 547**

**251st prime number – 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?

**SOLUTION:**

**24th prime number is part of the Fibonacci Primes. The position is 11 st.**

**101st prime number is not part of the Fibonacci Primes**

**251st prime number is part of the Fibonacci Primes. The position is 17 th.**

## Some Factorials

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

**SOLUTION:**

**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
2. Catheti: 10 and 12
3. Catheti 100 and 250

**SOLUTION:**

1. **Catheti: 3 and 4/ Hypotenuse = ?**

**C2 = A 2 + B 2 = 9+16=25**

**C = 5**

1. **Catheti: 10 and 12/Hypotenuse = ?**

**C2 = A 2 + B 2 = 100+144=244**

**C = 15.62**

1. **Catheti 100 and 250/Hypotenuse = ?**

**C2 = A 2 + B 2 = 10000+62500=72500**

**C = 269.26**

## Numeral System Conversions

Convert 1234d to binary and hexadecimal numeral systems.

**SOLUTION:**

**Binary** – **10011010010**

**Hexadecimal** - **4D2**

Convert 1100101b to decimal and hexadecimal numeral systems.

**SOLUTION:**

**Decimal** – **101**

**Hexadecimal** – **65**

Convert ABChex to decimal and binary numeral systems.

**SOLUTION:**

**Decimal** – **2748**

**Binary** - **101010111100**

## Least Common Multiple

Find LCM(1234, 3456).

**SOLUTION:**

* **Find LCM(1234, 3456).** **=>** **GCD(1234,3456) = 2** **=>** **(1234\*3456)/2 = 2132352** **=> LCM(1234,3456) = 2132352**