# Homework: Math for Developers

# Problem 1 Some Primes

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

24th – 89

101st – 547

251st – 1597

# Problem 2 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 – 11 place

101st - 547 – it’s a not Fibonacci number

251st 1597 – 18 place

# Problem 3 Some Factorials

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

100! = 93326215443944152681699238856266700490715968264381621468592963895217599993229915608941463976156518286253697920827223758251185210916864000000000000000000000000

171! = 1241018070217667823424840524103103992616605577501693185388951803611996075221691752992751978120487585576464959501670387052809889858690710767331242032218484364310473577889968548278290754541561964852153468318044293239598173696899657235903947616152278558180061176365108428800000000000000000000000000000000000000000

250! = 3232856260909107732320814552024368470994843717673780666747942427112823747555111209488817915371028199450928507353189432926730931712808990822791030279071281921676527240189264733218041186261006832925365133678939089569935713530175040513178760077247933065402339006164825552248819436572586057399222641254832982204849137721776650641276858807153128978777672951913990844377478702589172973255150283241787320658188482062478582659808848825548800000000000000000000000000000000000000000000000000000000000000

# Problem 4 Calculate Hypotenuse

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

1. Catheti: 3 and 4 Answer: 5
2. Catheti: 10 and 12 Answer: 1,6204
3. Catheti 100 and 250 Answer 269,2582

# Problem 5 Numeral System Conversions

Convert 1234d to binary and hexadecimal numeral systems.

Convert 1100101b to decimal and hexadecimal numeral systems.

Convert ABChex to decimal and binary numeral systems.

Answer:

1234d = 10011010010b = 4D2hex

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)

1100101b  = 101d = 65hex

ABChex = 2748d = 101010111100

Abc = 10 \* 162 + 11\*161 + 12\*160 = 2748d

# Problem 6 Least Common Multiple

Find LCM(1234, 3456).

Answer:  
For the values: 3456, 1234  
The LCM is: 2132352