**1.Some Primes:**

24th Prime number is: 89  
101st Prime number is: 547

251st Prime number is: 1597

**2.Some Fibonacci Primes:**

The 24th and the 251st Prime numbers are also Fibonacci Primes, the 101st Prime number however isn’t a Fibonacci number.

24th Prime = 11th Fibonacci = 89

251st Prime = 17th Fibonacci = 1597

**3.Some Factorials:**

100! = 93326215443944152681699238856266700490715968264381621468592963895217599993229915608941463976156518286253697920827223758251185210916864000000000000000000000000

171! = 1241018070217667823424840524103103992616605577501693185388951803611996075221691752992751978120487585576464959501670387052809889858690710767331242032218484364310473577889968548278290754541561964852153468318044293239598173696899657235903947616152278558180061176365108428800000000000000000000000000000000000000000

250! = 3232856260909107732320814552024368470994843717673780666747942427112823747555111209488817915371028199450928507353189432926730931712808990822791030279071281921676527240189264733218041186261006832925365133678939089569935713530175040513178760077247933065402339006164825552248819436572586057399222641254832982204849137721776650641276858807153128978777672951913990844377478702589172973255150283241787320658188482062478582659808848825548800000000000000000000000000000000000000000000000000000000000000

**4.Calculate Hypotenuse:**

1) a = 3 , b = 4

Using Pythagorean Theorem:

c2 = a2 + b2

c2 = 9 + 16  
c2 = 25   
c = 5

2) a = 10 , b = 12

c2 = a2 + b2

c2 = 100 + 144  
c2 = 244   
c = 15.620499351813308788259445471518

3) a = 100 , b = 250

c2 = a2 + b2

c2 = 10000 + 62500  
c2 = 72500

c = 269.25824035672520156253552457702

**5.Numeral System Conversions:**

**1234d** to binary:

|  |  |
| --- | --- |
| 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 |

= 10011010010b

**1234d**to hexadecimal:

|  |  |
| --- | --- |
| 1234:16 = 77 + 2 | 2 |
| 77:16 = 4 + 13 | D |
| 4:16 = 0 + 4 | 4 |

= 4D2h

**1100101b** to decimal:

|  |  |
| --- | --- |
| 1x26 = 64 | 64 |
| 1x25 = 32 | 32 |
| 0x24 = 0 | 0 |
| 0x23 = 0 | 0 |
| 1x22 = 4 | 4 |
| 0x21 = 0 | 0 |
| 1x20 = 1 | 1 |

= 101d

**1100101b**to hexadecimal:

|  |  |
| --- | --- |
| 1x26 = (64)10 | (40)16 |
| 1x25 = (32)10 | (20)16 |
| 0x24 = 0 | 0 |
| 0x23 = 0 | 0 |
| 1x22 = (4)10 | (4)16 |
| 0x21 = 0 | 0 |
| 1x20 = (1)10 | (1)16 |

= 65h

**ABChex**to decimal:

|  |  |
| --- | --- |
| 10x162 = 2560 | 2560 |
| 11x161 = 176 | 176 |
| 12x160 = 12 | 12 |

= 2748d

**ABChex** to binary:

|  |  |  |  |
| --- | --- | --- | --- |
|  | A | B | C |
| Decimal | 10 | 11 | 12 |
|  | 1x23+0x22+1x21+0x20 | 1x23+0x22+1x21+1x20 | 1x23+1x22+0x21+0x20 |
| Binary | 1010 | 1011 | 1100 |

= 1010 1011 1100b

**6.Least Common Multiple:**

1) Decomposing into Prime factors:

**1234:**

|  |  |
| --- | --- |
| 1234:2 = 617 | 21 |
| 617:617 = 1 | 6171 |

**3456:**

|  |  |
| --- | --- |
| 3456:2 = 1728 | 21 |
| 1728:2 = 864 | 22 |
| 864:2 = 432 | 23 |
| 432:2 = 216 | 24 |
| 216:2 = 108 | 25 |
| 108:2 = 54 | 26 |
| 54:2 = 27 | 27 |
| 27:3 = 9 | 31 |
| 9:3 = 3 | 32 |
| 3:3 = 1 | 33 |

**1234 = 21 x 6171**

**3456 = 27 x 33**

Common Prime factors : 2  
Uncommon Prime factors : 3 , 617

Common Prime factors with the greatest exponent: 27

Uncommon Prime factors with the greatest exponent: 33, 6171

LCM = Common Prime factors with greatest exponent x Uncommon Prime factors with the greatest exponent  
LCM = 27 x 33 x 6171

LCM = 2132352