Homework: Math for Developers

Problem1.- Solution

24th prime number=89;

101st prime number=547;

251st prime number=1597.

Problem2.- Solution

89 is 11th Fibonacci number;

547 is not a Fibonacci number;

1597 is 17th Fibonacci number.

Problem3.-Solution

100!=100\*99\*98\*97\*96\*95\*…\*3\*2\*1=93326215443944152681699238856266700490715968264381621468592963895217599993229915608941463976156518286253697920827223758251185210916864000000000000000000000000;

171!=171\*170\*169\*168\*167\*…\*3\*2\*1=1241018070217667823424840524103103992616605577501693185388951803611996075221691752992751978120487585576464959501670387052809889858690710767331242032218484364310473577889968548278290754541561964852153468318044293239598173696899657235903947616152278558180061176365108428800000000000000000000000000000000000000000;

250!=250\*249\*248\*247\*246\*…\*3\*2\*1=3232856260909107732320814552024368470994843717673780666747942427112823747555111209488817915371028199450928507353189432926730931712808990822791030279071281921676527240189264733218041186261006832925365133678939089569935713530175040513178760077247933065402339006164825552248819436572586057399222641254832982204849137721776650641276858807153128978777672951913990844377478702589172973255150283241787320658188482062478582659808848825548800000000000000000000000000000000000000000000000000000000000000.

Problem4.- Solution

c2=a2+b2

1.c2=32+42=9+16=25=52 c=5;

2.c2=102+122=100+144=244 c=sqrt(244);

3.c2=1002+2502=10000+62500=72500 c=sqrt(72500).

Problem5.- Solution

1.- 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=10011010010b

1234/16=77 (2) 77/16=4 (13=D) 4/16=0 (4)

1234d=4D2hex

2.- Convert 1100101b to decimal and hexadecimal numeral systems.

1\*26+1\*25+0\*24+0\*23+1\*22+0\*21+1\*20=64+32+4+1=101

1100101b=101d

1100101b=0110&0101=65hex

3. Convert ABChex to decimal and binary numeral systems.

ABC=10\*162+11\*16+12=2560+176+12=2748

ABChex=2748d

ABC=1010&1011&1100=101010111100

ABChex=101010111100b

Problem6.- Solution

LCM(1234, 3456)

[1234\*3456]/2=4264704/2=2132352

LCM(1234, 3456)=2132352