Hand calculation, reciprocal of 701

When you look at the reciprocal of 701 which s a very interesting number just one unite over 700 the repeating digits also have some note worthy series of digits. There are 7 sets of "00" and 7 set of "99" , the last pair of "99" will be the last two digits while the rest of the numbers also have 6 or 7 pairs also,

William Shanks s one of several men who dd the hand calculation of the reciprocal of 701. In Williams PI calculation he had to do the term for $(1/5)^{701}/701$ which has 700 leading 0's which does not count, followed by 212 digits for the power of 2 which also does not count, which leaves last 8 trailing 0's for some of the digits from the 700 digits of the reciprocal of 701. As it turns out the starting point of this number is from the 461 digit on as you can see he did 8 of the total 700 not the complete 700 for the total number of required digits. William Shanks had to do all the reciprocal of all the odd numbers up to 1009.

The last person to calculate the number γ 0.5772156649 was J. C. Adams on December 6, 1877 he published 264 and 265 digits say he calculated 270 digits that still fall short of the 700 required digits J. C. Adams had to do all the reciprocal of all the numbers up to 1000.

On the next 24 pages have the hand calculation for he reciprocal of 701 which I have done for the fun of it. Since there seams to be no other person who has done the complete calculation this is the first time it has been done. A computer program does not create this detailed level of calculation.

$$\frac{1}{701}\ A$$

```
          00142 65335 23537 80313  83737  5T783
701 )1. 00000 00000 00000 00000  00000  00000
     701
     2990        5470        1250
     2804        4907         701
      1860        5630        5490
      1402        5608        4907
       4580        2200        5830
       4206        2103        5608
        3740         970        2220
        3505         701        2103
         2350        2690         117
         2103        2103
          2470        5870
          2103        5608
 1   701              2620
 2  1902    3670      2103
 3  2103    3505
 4  2804     1650      5170
 5  3505     1402      4907
 6  4206      2480      2630
 7  4907      2103      2103
 8  5608       3770      5270
 9  6309       3505      4907
10  7010        2650      3630
                2103      3505
                 547       1250
```

$$\frac{1}{701} \quad B$$

16690 44222 53922 96718 97289 58630
117 00000 00000 00000 00000 00000 00000

70 1

```
4690          1600          6720
4206          1402          6309
 4840          2080          4110
 4206          1402          3505
  634          6780          6050
  6309         6309          5608
   3100         4710          4420
   2804         4206          4206
    2960         5040          2140
    2804         4907          2103
     1560         1330          370
     1402          701
      1580         6290
      1402         5608
       1780         6820
       1402         6309
        3780         5410
        3505         4907
         2750         2030
         2103         1402
          6470         6280
          6309         5608
           1610          672
```

#01 C

5 2781 74037 08987 16119 82881 59771

370 00000 00000 00000 00000 00000 00000

3505

1950	5020	4190
1402	4907	3505
5480	1130	6850
4907	701	6309
5730	4290	5410
5608	4206	4907
1220	840	5030
701	701	4907
5190	1390	1230
4907	701	701
2830	6890	529
2804	6309	
2600	5810	
2103	5608	
4970	2020	
4907	1402	
6300	6180	
5608	5608	
6920	5720	
6309	5608	
6110	1120	
5608	701	
502	419	

$\frac{1}{701}$ D

25463 62339 51497 86019 97246 93295
529 00000 00000 00000 00000 00000 00000
4907

3830	3490	4860
3505	2804	4206
3250	6860	6540
2804	6309	6309
4460	5510	2310
4206	4907	2103
2540	6030	2070
2103	5608	1402
4370	4220	6680
4206	4206	6309
1640	1400	3710
1402	701	3505
2380	6990	2050
2103	6309	
2770	6810	
2103	6309	
6670	5010	
6309	4907	
3610	1030	
3505	701	
1050	3290	
701	2804	
349	486	

29243 93723 25249 64336 66191   15549
205 00000 00000 00000 00000 00000   00000

1402
6480   1750   6390
6309   1402   6309
  1710   3480   810
  1402   2804   701
3080   6760   1090
2804   6309   701
  2760   4510   3890
  2103   4206   3505
   6570   3040   3850
   6309   2804   3505
    2610   2360   3450
    2103   2103   2804
     5070   2570   6460
     4907   2103   6309
      1630   4670   1510
      1402   4206
       2280   4640
       2103   4206
        1770   4340
        1402   4206
         3680   1340
         3505   701
          175   639

21540 65620 54208 27389 44365 19258
152 00000 00000 00000 00000 00000 00000
1402

1080	1920	6490
701	1402	6309
3790	5186	1810
3505	4907	1402
2850	2730	4080
2804	2103	3505
4600	6270	5750
4206	5608	5608
3940	6620	142
3505	6309	
4350	3110	
4206	2804	
1440	3060	
1402	2804	
3800	2520	
3505	2103	
2950	4570	
2804	4206	
1460	3640	
1402	3505	
5800	1350	
5608	701	
192	6490	

701 G

20256 77603 42368 0.45649072 53209
[42 00000 00000 00000 00000 00000 00000
1402

1800	5640	1470
1402	5608	1402
3980	3200	6800
3505	2804	6309
4750	3960	491
4206	3505	
5440	4550	
4907	4206	
5330	3440	
4907	2804	
4230	6360	
4206	8309	
	2400	5100
	2103	4907
	2970	1930
	2804	1402
	1660	5280
	1402	4907
	2580	3730
	2103	3505
	4770	2250
	4206	2103
	564	147

$\dfrac{1}{701}$ H

```
     70042  79600    57061  34094  15721 25534
491  00600  00000   00000  00000  00000 00000
4907

   3000        6600         3470
   2804        6309         2804
   1960        2910          666
   1402        2804
    5580        1060
    4907         701
     6730        3590
     6309        3505
       4210        850
       4206        701
         4000   1490
         3505   1902
          4950    880
          4907    701
            4300  1790
            4206  1402
              940  3880
              701  3505
             2390   3750
             2103   3505
               2870  2450
               2804  2103
                 66    347
```

701 x̄

95007 13266 76176 89015 69186 87589
666 00000 00000 00000 00000 00000 00000
6309
3510   4830   5320
3505   4206   4907
    5000   6240   4130
  4907   5608   3505
    930   6320   6250
    701   6309   5608
  2290   1100   6420
   2103   701   6309
    1870   3990   111
    1402   3505
    4680   4850
    4206   4206
     4740   6440
    4206   6309
     5340   1310
     4907   701
      4330   6090
      4206   5608
       1240   4820
       701   4206
       5390   6140
       4907   5608
        4830   532

$$\frac{}{701} \ J$$

```
        15834  52211  12696  14835  94864  47931-
  111   00000  00000  00000  00000  00000  00000
  701
  4090          4880           4520
  3505          4206           4206
   5850          6740           3140
   5608          6309           2804
    2420          4310           3360
    2103          4206           2804
      3170          1040          5560
      2804           701          4907
       3660          3390          6530
       3505          2804          6309
         1550          5860          2210
         1402          5608          2103
          1480          2520          1070
          1402          2103           701
           780          4170          369
           701          3505
            790          6650
            701          6309
             890          3410
             701          2804
              1890          6060
              1402          5608
               488          4520
```

$\frac{1}{701}$ K

52639 08701 85449 35805 99144 07988
369 00000 00000 00000 00000 00000 00000
3505

```
1850        6560        6930
1402        6309        6309
 4480        2510        6210
 4206        2103        5608
   2740       4070         6020
   2103       3505         5608
    6370       5650          412
    6309       5608
          6100      4206
          5608      3505
           4920      6950
           4907      6309
             1300     6410
             701      6309
             5990      1010
             5608       701
              3820     3090
              3505     2804
               3150      2860
               2804      2804
                3460     5600
                2804     4907
                  656      6930
```

$\frac{1}{701}$ 4

5877318116 97574 89300 99857 34664
412 00000 00000 00000 00000 00000 00000
3505
6150   4030   2430
5208   3505   2103
5420   5250   3270
4907   4907   2804
5130   3430   4660
4907   2804   4206
2230   6240   4540
2103   5608   4206
1270   6520   3340
701   6309   2804
5690   2110   536
5608   2103
820   7000
701   6309
1190   6910
701   6309
4890   6010
4206   5608
6840   4020
6309   3505
5310   5150
4907   4907
403   273

$$\frac{1}{701} \quad m$$

76462   1968   16262   48216   83309   55777

536   00000   00000   00000   00000   00000   00000

4907

4530   1840   6700
4206   1402   6309
  3240   4380   3910
  2804   4206   3505
    4360   1740   4050
    4206   1402   3505
     1540   3380   5450
     1402   2804   4907
      1380   5760   5430
       701   5608   4907
      6790   1520   5230
      6309   1402   4907
       4810   1180   3230
       4206   701
        6040   4790
        5608   4206
         4320   5840
         4206   5608
          1140 2320
          701   2103
          4390 2170
          4206 2103
           184   67

$$\frac{1}{701} N$$

46077 03281 02710 41369 47218 25962
323 06000 00600 00000 00000 00600 00000
2804
  4260   960   6750
  4206   701   6309
   5400   2590   4410
   4907   2103   4206
    4930   4870   2040
    4907   4206   1402
     2300   6640   638
     2103   6309
      1970   3310
      1402   2804
       5680   5060
       5608   4907
        720   1530
        701   1402
        1900   1280
        1402   701
         4980   5790
         4907   5608
         730   1820
         701   1402
         2900   4180
         2804   3505
          96   675

$$\frac{1}{701} \quad 0$$

9101283880 17118 40228 2453637260
638 00000 00000 00000 00000 00000 00000
6309

```
 710          5890          5370
 701          5608          4907
  900          2820          4630
  701          2804          4206
 1990          1600          4240
 1402          1402          4206
  5880          1980           340
  5608          1402
   2720          5780
   2103          5608
    4170          1720
    5608          1402
     5620          3180
     5608          2804
      1200          3760
       701          3505
      4990          2550
      4907          2103
       830          4470
       701          4206
      1290          2640
       701          2103
        589           537
```

$\dfrac{1}{701}$ P

48502 13980 02853 06704 70756 06276
340 00000 00000 00000 00000 00000 00000
2804

5960   4700
5208   4206
 3520   4940
 3505   4907
    1500   3300
    1402   2804
     980   4960
     701   4907
    2790   5300
    2103   4907
     6870   3930
     6309   3505
     5610   4250
     5608   4206
       2000   4400
       1402   4206
       5980   1940
       5608   1402
        3720   5380
        3505   4907
         2150   4730
         2103   4206
          470   524

74750 35663 33808 84450 78459 34379
524 00000 00000 00000 00000 00000 00000
4907

3330   6200   3070
2804   5608   2804
  5260   5920   2660
  4907   5608   2103
    3530   3120   5570
    3505   2804   4907
      2500   3160   6630
      2103   2804   6309
        3970   3560   321
        3505   3505
          4650   5500
          4206   4907
            4440   5930
            4206   5608
              2340   3220
              2103   2804
                2370   4160
                2103   3505
                  2670   6550
                  2103   6309
                    5670   2410
                    5608   2103
                      62   3070

$$\frac{1}{701} R$$

45791 72610 55634 80741 79743 22396

321 00000 00000 00000 00000 00000 00000

2804

4060	2440	1570
3505	2103	1402
5550	3370	1680
4907	2804	1402
6430	5460	2780
6309	5608	2103
1210	5200	6770
701	4907	6309
5090	2930	4610
4907	2804	4206
1830	1260	404
1402	701	
4280	5590	
4206	4907	
740	6830	
701	6309	
3900	5210	
3505	4907	
3950	3030	
3505	2804	
4450	2260	
4206	2103	
244	157	

$$\frac{+}{701} \; 5$$

57631 95435 09272 46790 29957 20399
404 00000 00000 00000 00000 00000 00000
3505

5350	5080	1430
4907	4907	1402
4430	1730	2800
4206	1402	2103
2240	3280	6970
2103	2804	6309
1370	4760	6610
701	4206	6309
6690	5540	301
6309	4907	
	3810	6330
	3505	6309

3050	2100
2804	1402
2460	6980
2103	6309
3770	6710
3505	6309
6500	4010
6309	3505
1910	5050
1402	4907
508	143

42938 65905 84878 74465 04992 86733
301 00000 00000 00000 00000 00000 00000
286 4

2060   5520   6080
1402   4907   5608
6580   6130   4720
6309   5608   4206
2710   5220   5140
2103   4907   4907
6070   3130   2330
5608   2804   2103
4620   3260   2270
4206   2804   2103
4140   4560   167
3505   4206
6350   3540
6309   3505
              3500
4100
3505   2804
5950   6960
5608   6309
3420   6510
2804   6309
6160   2010
5608   1402
552   6080

$$\frac{1}{701} \quad u$$

23823 10984 30813   12410   84165 47788
167 00000 00000 00000   00000   00000 00000
1402

```
 2680          2190         5460
 2103          2103         4907
  5770          870          5530
  5608          701          4907
   1620         1690          6230
   1402         1402          5608
    2180        2880          6220
    2103        2804          5608
     770         760           612
     701         701
              6900         5900
              6309         5608
               5910        2920
               5608        2804
                3020        1160
                2804         701
                 2160        4590
                 2103        4206
                  5700        3840
                  5608        3505
                   920         3350
                   701         2804
                   219          546
```

$$\frac{1}{701}$$ ✓

87303 85164 05135 52068 47360 91298
612 00000 00000 00000 00000 00000 00000
5608
5120   3870   2090
4907   3505   1402
2130   3650   6880
2103   3505   6309
    2700   1450   5710
    2103   1402   5608
    5970   4800   102
    5608   4206
    3620   5940
    3505   5608
        1150   3320
        701   2804
        4490   5160
        4206   4907
        2840   2530
        2804   2103
            3600   4270
            3505   4206
            950   6400
            701   6309
            2490   910
            2103   701
            387   209

14550 64194 00855 92011 41226 81883

102 00000 00000 00000 00000 00000 00000

701
3190   6450   6190
2804   6309   5608
  3860   1410   5820
  3505   4102   5608
    3550   800   2120
    3505   701   2103
      4500   990   170
      4206   701
      2940   2890
      2804   2804
        1360   860
        701   701
        6590   1590
        6309   1402
          2810   1880
          2804   1402
            6000   4780
            5608   4206
            3920   5740
            3505   5608
            4150   1320
            3505   701
            645   619

$$\frac{1}{701} \quad X$$

```
        02425 10699
17  00000 00000  00000 00000  00000  00000
14 02
   2980
   2804
    1760
    1402
     3580
     3505
        750
        701
         4900
         4206
          6940
          6309
           6310
           6309
              1  ←
```

1	701
2	1402
3	2103
4	2804
5	3505
6	4206
7	4907
8	5608
9	6309