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Same Digits Embedded Palprimes

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Abstract

The idea of embedding palindromic prime (palprime) numbers in the form of pyramid or tree is very famous in the literature, where previous palprime is in the middle of next, and so on. In this case there is no limit where it ends, because always we find next palprime containing previous one. In this work, we brought palprimes of lengths 3 and 5 in such a way that pyramids are with same digits as of palprime. In case of length 3, there are 15 palprimes, and in case of length 5, there are total 93 palprimes. Similar kind of work with palprimes of length 7 shall be dealt elsewhere. In this case there are total 668 palprimes.

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1 Introduction

Embedded palindromic prime numbers are very much famous in the literature [1, 2]. It is generally known by pyramid palprimes. Since, the previous palprime is in the middle of next one, we call it embedded or nested palprimes. The work here is concentrated on all the palprimes of digits 3 and 5. We can always find a next palprime containing previous, we limit our study to length 6 for the 3 digits and length 5 for digits 5. By length here we understand that total number of primes in each pattern. In each case we can always find next.

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1.1 Palprimes of Lengths 3, 5 and 7

There are only 4 primes of single digit, i.e., 2, 3, 5 and 7. There is only one palprime of two digits, i.e., 11. There are total 15 palprimes of digits 3, etc. See below the list [4]:

Length	Number of Palprimes
1	4
2	1
3	15
5	93
7	668
9	5172
11	42042
13	353701
15	3036643
17	27045226
19	239093865
21	2158090933
...

Below are written palprimes of length 3, 5 and 7.

101 131 151 181 191 313 353
373 383 727 757 787 797 919 929.

There are total 93 palprimes of five digits given by

10301 10501 10601 11311 11411 12421 12721 12821 13331 13831
13931 14341 14741 15451 15551 16061 16361 16561 16661 17471
17971 18181 18481 19391 19891 19991 30103 30203 30403 30703
30803 31013 31513 32323 32423 33533 34543 34843 35053 35153
35353 35753 36263 36563 37273 37573 38083 38183 38783 39293
70207 70507 70607 71317 71917 72227 72727 73037 73237 73637
74047 74747 75557 76367 76667 77377 77477 77977 78487 78787
78887 79397 79697 79997 90709 91019 93139 93239 93739 94049
94349 94649 94849 94949 95959 96269 96469 96769 97379 97579
97879 98389 98689.

Out of these 93 palprimes, there are 17 that contains some of 3 digits. See below:

131 797 151 727 929 191 101 373 787
11311 17971 31513 37273 39293 71917 91019 93739 97879

383 101 353 757 131 797 313 757
13831 31013 33533 37573 71317 77977 93139 97579

There are total 688 palprimes of lenght 7 given by

1003001	1008001	1022201	1028201	1035301	1043401	1055501	1062601	1065601	1074701
1082801	1085801	1092901	1093901	1114111	1117111	1120211	1123211	1126211	1129211
1134311	1145411	1150511	1153511	1160611	1163611	1175711	1177711	1178711	1180811
1183811	1186811	1190911	1193911	1196911	1201021	1208021	1212121	1215121	1218121
1221221	1235321	1242421	1243421	1245421	1250521	1253521	1257521	1262621	1268621
1273721	1276721	1278721	1280821	1281821	1286821	1287821	1300031	1303031	1311131
1317131	1327231	1328231	1333331	1335331	1338331	1343431	1360631	1362631	1363631
1371731	1374731	1390931	1407041	1409041	1411141	1412141	1422241	1437341	1444441
1447441	1452541	1456541	1461641	1463641	1464641	1469641	1486841	1489841	1490941
1496941	1508051	1513151	1520251	1532351	1535351	1542451	1548451	1550551	1551551
1556551	1557551	1565651	1572751	1579751	1580851	1583851	1589851	1594951	1597951
1598951	1600061	1609061	1611161	1616161	1628261	1630361	1633361	1640461	1643461
1646461	1654561	1657561	1658561	1660661	1670761	1684861	1685861	1688861	1695961
1703071	1707071	1712171	1714171	1730371	1734371	1737371	1748471	1755571	1761671
1764671	1777771	1793971	1802081	1805081	1820281	1823281	1824281	1826281	1829281
1831381	1832381	1842481	1851581	1853581	1856581	1865681	1876781	1878781	1879781
1880881	1881881	1883881	1884881	1895981	1903091	1908091	1909091	1917191	1924291
1930391	1936391	1941491	1951591	1952591	1957591	1958591	1963691	1968691	1969691
1970791	1976791	1981891	1982891	1984891	1987891	1988891	1993991	1995991	1998991

3001003	3002003	3007003	3016103	3026203	3064603	3065603	3072703	3073703	3075703
3083803	3089803	3091903	3095903	3103013	3106013	3127213	3135313	3140413	3155513
3158513	3160613	3166613	3181813	3187813	3193913	3196913	3198913	3211123	3212123
3218123	3222223	3223223	3228223	3233323	3236323	3241423	3245423	3252523	3256523
3258523	3260623	3267623	3272723	3283823	3285823	3286823	3288823	3291923	3293923
3304033	3305033	3307033	3310133	3315133	3319133	3321233	3329233	3331333	3337333
3343433	3353533	3362633	3364633	3365633	3368633	3380833	3391933	3392933	3400043
3411143	3417143	3424243	3425243	3427243	3439343	3441443	3443443	3444443	3447443
3449443	3452543	3460643	3466643	3470743	3479743	3485843	3487843	3503053	3515153
3517153	3528253	3541453	3553553	3558553	3563653	3569653	3586853	3589853	3590953
3591953	3594953	3601063	3607063	3618163	3621263	3627263	3635363	3643463	3646463
3670763	3673763	3680863	3689863	3698963	3708073	3709073	3716173	3717173	3721273
3722273	3728273	3732373	3743473	3746473	3762673	3763673	3765673	3768673	3769673
3773773	3774773	3781873	3784873	3792973	3793973	3799973	3804083	3806083	3812183
3814183	3826283	3829283	3836383	3842483	3853583	3858583	3863683	3864683	3867683
3869683	3871783	3878783	3893983	3899983	3913193	3916193	3918193	3924293	3927293
3931393	3938393	3942493	3946493	3948493	3964693	3970793	3983893	3991993	3994993
3997993	3998993								

7014107	7035307	7036307	7041407	7046407	7057507	7065607	7069607	7073707	7079707
7082807	7084807	7087807	7093907	7096907	7100017	7114117	7115117	7118117	7129217
7134317	7136317	7141417	7145417	7155517	7156517	7158517	7159517	7177717	7190917
7194917	7215127	7226227	7246427	7249427	7250527	7256527	7257527	7261627	7267627
7276727	7278727	7291927	7300037	7302037	7310137	7314137	7324237	7327237	7347437
7352537	7354537	7362637	7365637	7381837	7388837	7392937	7401047	7403047	7409047
7415147	7434347	7436347	7439347	7452547	7461647	7466647	7472747	7475747	7485847
7486847	7489847	7493947	7507057	7508057	7518157	7519157	7521257	7527257	7540457
7562657	7564657	7576757	7586857	7592957	7594957	7600067	7611167	7619167	7622267
7630367	7632367	7644467	7654567	7662667	7665667	7666667	7668667	7669667	7674767
7681867	7690967	7693967	7696967	7715177	7718177	7722277	7729277	7733377	7742477
7747477	7750577	7758577	7764677	7772777	7774777	7778777	7782877	7783877	7791977
7794977	7807087	7819187	7820287	7821287	7831387	7832387	7838387	7843487	7850587
7856587	7865687	7867687	7868687	7873787	7884887	7891987	7897987	7913197	7916197
7930397	7933397	7935397	7938397	7941497	7943497	7949497	7957597	7958597	7960697
7977797	7984897	7985897	7987897	7996997					

9002009	9015109	9024209	9037309	9042409	9043409	9045409	9046409	9049409	9067609
9073709	9076709	9078709	9091909	9095909	9103019	9109019	9110119	9127219	9128219
9136319	9149419	9169619	9173719	9174719	9179719	9185819	9196919	9199919	9200029
9209029	9212129	9217129	9222229	9223229	9230329	9231329	9255529	9269629	9271729
9277729	9280829	9286829	9289829	9318139	9320239	9324239	9329239	9332339	9338339
9351539	9357539	9375739	9384839	9397939	9400049	9414149	9419149	9433349	9439349
9440449	9446449	9451549	9470749	9477749	9492949	9493949	9495949	9504059	9514159
9526259	9529259	9547459	9556559	9558559	9561659	9577759	9583859	9585859	9586859
9601069	9602069	9604069	9610169	9620269	9624269	9626269	9632369	9634369	9645469
9650569	9657569	9670769	9686869	9700079	9709079	9711179	9714179	9724279	9727279
9732379	9733379	9743479	9749479	9752579	9754579	9758579	9762679	9770779	9776779
9779779	9781879	9782879	9787879	9788879	9795979	9801089	9807089	9809089	9817189
9818189	9820289	9822289	9836389	9837389	9845489	9852589	9871789	9888889	9889889
9896989	9902099	9907099	9908099	9916199	9918199	9919199	9921299	9923299	9926299
9927299	9931399	9932399	9935399	9938399	9957599	9965699	9978799	9980899	9981899
9989899									

Out of these 688 palprimes, there are 72 palprimes those contains palprimes of length 5. See below:

11411	10301	30403	73237	94849	36563	17471	72727
1114111	3103013	3304033	3732373	3948493	7365637	9174719	9727279
16061	10601	30703	76367	98389	38183	17971	73237
1160611	3106013	3307033	3763673	3983893	7381837	9179719	9732379
16361	12721	31013	77377	96469	39293	19991	77977
1163611	3127213	3310133	3773773	3964693	7392937	9199919	9779779
19391	15551	31513	77477	11411	72227	32423	78787
1193911	3155513	3315133	3774773	7114117	7722277	9324239	9787879
33533	16061	35353	78487	15551	74747	35153	78887
1335331	3160613	3353533	3784873	7155517	7747477	9351539	9788879
36263	16661	36263	79397	30203	77477	94949	90709
1362631	3166613	3362633	3793973	7302037	7774777	7949497	9907099
73037	18181	36563	79997	31013	94349	10301	93139
1730371	3181813	3365633	3799973	7310137	7943497	9103019	9931399
75557	19391	38083	93139	32423	12721	35753	93239
1755571	3193913	3380833	3931393	7324237	9127219	9357539	9932399
79397	19891	39293	94649	36263	12821	37573	97879
1793971	3198913	3392933	3946493	7362637	9128219	9375739	9978799

Combining the embedding property of 3, 5 and 7 lengths, we have following results:

101	313	353	797	929
31013	93139	33533	17971	39293
3310133	3931393	1335331	9179719	3392933
151	313	787	797	929
31513	93139	97879	77977	39293
3315133	9931399	9978799	9779779	7392937

Out of these 10 embedded sequential palprimes there are only three that goes further, i.e., having lengths 3, 5, 7 and 9:

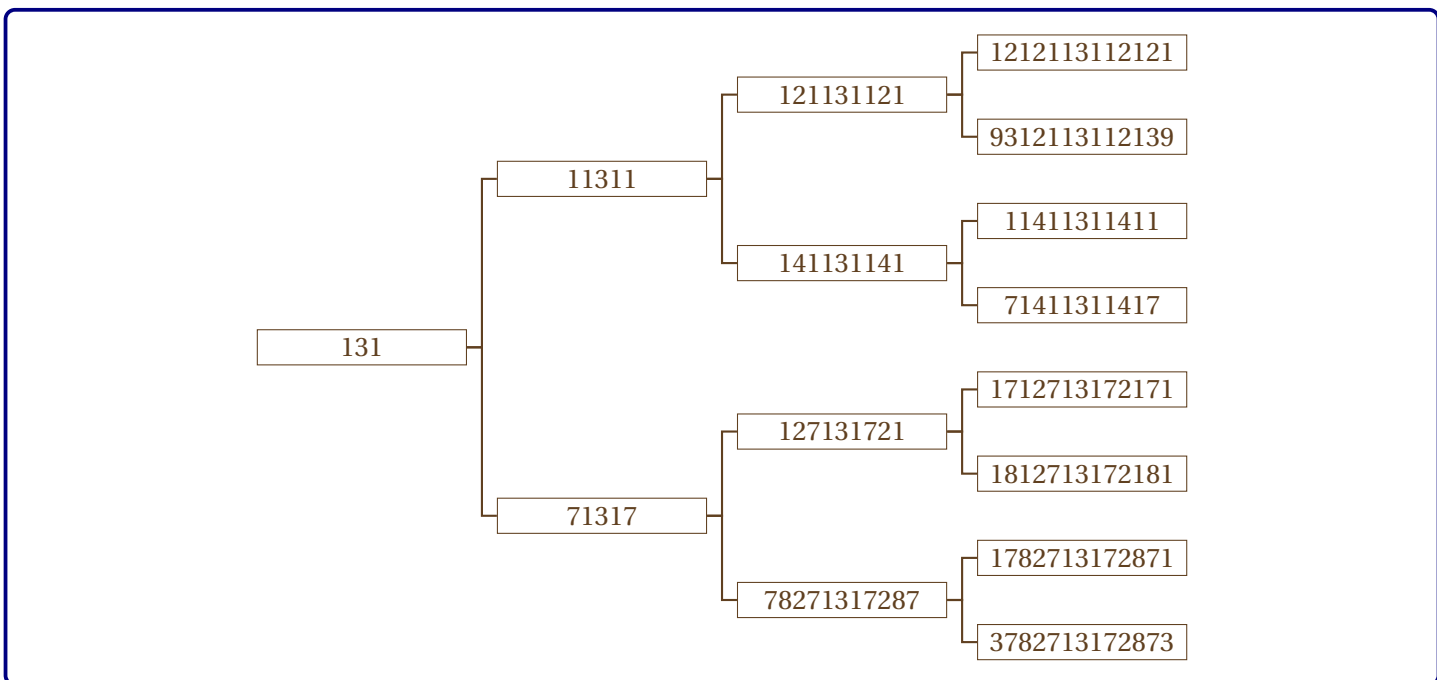
101	929	929
31013	39293	39293
3310133	3392933	7392937
933101339	733929337	373929373

Thus, we work with 15 palprimes of digit 3 and 76 of 5 digits. There are much more possibilities of palprimes that we have given below. The aim is not to given more results, but cover all the possible palprimes of digits 3 and 5. We considered all the possible digits, i.e., 0 to 9. Next our aim is to work with restricted digits, such as, 1,3; 1, 6, 9; 1, 2, 5; etc. In some cases complimentary embedded palprimes are also given. By complimentary, we under stand that if we change one digit with other still it remains palprime pyramid.

Before proceeding further let us see below **embedded splitting palprime tree**.

1.2 Embedded Palprime Splitting Tree

Let us consider a 3 digits palprime 131. It is embedded in two palprimes 11311 and 71317. Again, 11311 is embedded in 121131121 and 141131141. Further 121131121 is embedded in 1212113112121 and 9312113112139. And 141131141 embedded in 11411311411 and 71411311417. Now the second one i.e., 71317 is embedded in 127131721 and 78271317287. Again 127131721 is embedded in 1712713172171 and 1812713172181. And 78271317287 is embedded in 1782713172871 and 3782713172873, and so on. See below the above structures:



Let's see the same structure two parts: one with 11311 and another with 71317 in form of embedding palprimes:

131	131	131	131
11311	11311	11311	11311
121131121	121131121	141131141	141131141
1212113112121	9312113112139	11411311411	71411311417
...
131	131	131	131
71317	71317	71317	71317
127131721	127131721	78271317287	78271317287
1712713172171	1812713172181	1782713172871	3782713172873
...

Remark 1.1. *By no way, the above two-by-two example is unique. We may have other palprimes giving more splitting results. Also, this is not the end. This process continues as long as we go on finding more palprimes.*

More examples of this kind can be seen in author's work [17, 18].

2 Comparison Study

2.1 Embedded Palprime Patterns

Let us consider the following embedded palprime pattern up to length 10:

$$\begin{aligned}
 & \blacktriangleright 101 \\
 & \quad 31013 \\
 & \quad 3310133 \\
 & \quad 933101339 \\
 & \quad 1593310133951 \\
 & \quad 13159331013395131 \\
 & \quad 171315933101339513171 \\
 & \quad 1617131593310133951317161 \\
 & \quad 96161713159331013395131716169 \\
 & \quad 36396161713159331013395131716169363
 \end{aligned} \tag{1}$$

More study on this embedded palprimes can be seen in [1, 2, 3, 5].

2.2 Fixed Digits Prime Patterns

Let us consider following pattern of prime numbers with fixed digit's repetition:

- ▶ **562 9933**
- 562 192 9933**
- 562 192 192 9933**
- 562 192 192 192 9933**
- 562 192 192 192 192 9933**
- 562 192 192 192 192 192 9933**
- 562 192 192 192 192 192 192 9933**
- 562 192 192 192 192 192 192 192 9933**
- 562 192 192 192 192 192 192 192 192 9933** (2)

The example (2) is of prime pattern with fixed digits repetition. The example (1) is embedded palprimes pattern, where previous palprimes is in the next. In case of example (2), the digit 192 repeats horizontally as well as vertically. In total we have 10 prime numbers, while repetition is only in the nine prime numbers. In this case the next number is not a prime numbers, see below:

$$5621921921921921921921921921921921921921921929933 = 911 \times 14264443 \times 432625002551214522741563321.$$

This means the process is limited. In case of example (1), we can easily find further palprimes containing previous ones, see below:

$$\begin{aligned} &323639616171315933101339513171616936323 \\ &772323639616171315933101339513171616936323277 \\ &\dots \dots \dots \end{aligned}$$

This means that we can always find next palprime embedding previous one, while the in case of prime pattern (2) , the process is limited. For more study on prime patterns refer author’s work [9, 10, 11, 12, 13].

2.3 Symmetric Embedded

Consider the following examples,

619	619
111619111	161619191
666111619111999	11616191911
6666611161911199999	61111616191911119
116666666111619111999999911	6666116161919119999
111661116666666111619111999999911199111	11666611616191911999911
6611166111666666611161911199999991119911199.	611111166661161619191199991111119. (3)

The above group of prime numbers are having the property of embedding primes, but are not palindromic. Moreover, they are **symmetric in 6 and 9**, but not changeable, i.e., if we replace 6 by 9 and 9 by 6, they are no more prime numbers.

2.4 Magic-Square-Type Palprimes

Let us consider the following two examples of magic-square-type palprimes of order 9×9

$$\begin{array}{ccc}
193191391 & 373171373 & 991737199 \\
901606109 & 761969167 & 911868119 \\
318181813 & 319909913 & 118686811 \\
161535161 & 199515991 & 786848687 \\
908363809 & 760111067 & 368414863 \\
161535161 & 199515991 & 786848687 \\
318181813 & 319909913 & 118686811 \\
901606109 & 761969167 & 911868119 \\
193191391 & 373171373 & 991737199
\end{array} \quad (4)$$

The above two examples are of **symmetric magic-square-type** palprimes, i.e., all the numbers are palprimes in rows, columns and in principal diagonals. Moreover they have the property of row-wise embedding. See below:

$$\begin{array}{c}
908363809 \\
161535161908363809161535161 \\
318181813161535161908363809161535161318181813 \\
901606109318181813161535161908363809161535161318181813901606109 \\
193191391901606109318181813161535161908363809161535161318181813901606109193191391 \\
760111067 \\
199515991760111067199515991 \\
319909913199515991760111067199515991319909913 \\
761969167319909913199515991760111067199515991319909913761969167 \\
373171373761969167319909913199515991760111067199515991319909913761969167373171373 \\
368414863 \\
786848687368414863786848687 \\
118686811786848687368414863786848687118686811 \\
911868119118686811786848687368414863786848687118686811911868119 \\
991737199911868119118686811786848687368414863786848687118686811911868119991737199
\end{array} \quad (5)$$

All the three examples appearing in (5) referring to corresponding palprimes groups given in (4). It has the property of embedding, and are palprimes. These are the only three examples we found out of approximately 643338 calculated. For detailed study refer author's work [14, 15, 16]. For summary of author's work on numbers refer [6, 7, 8].

3 Special Type of Embedded Palprimes

3.1 Complimentary Embedded Palprimes

Below are examples of complimentary embedded palprimes.

16661	19991	
1191166611911	1161199911611	
111111191166611911111111	111111161199911611111111	(6)

131	191	
71317	71917	
77771317777	77771917777	
11111777771317777711111	11111777771917777711111	
11111111111117777713177777111111111111	11111111111117777719177777111111111111	(7)

131	191	
71317	71917	
77771317777	77771917777	
11777777771317777777711	11777777771917777777711	
111111111111177777771317777777111111111111	1111111111111777777719177777771111111111111	(8)

In examples given in (6), the digits 6 and 9 are changeable. In examples given in (7) and (8), the digits 3 and 7 are changeable. Due this we call these types of examples as **complimentary or paired embedded palprimes**. Detailed study of this kind of results shall be dealt elsewhere.

3.2 Same Digits

Below are examples embedded palprimes, where the digits are the same as of first palprime:

9271729	9271729
77927172977	92927172929
917792717297719	1929271729291
7791779271729771977.	1191929271729291911.
771020177	71021012017
120771020177021	117102101201711
1212077102017702121	71171021012017117
12121207710201770212121.	127117102101201711721.
71317	71317
71171317117	71171317117
17171171317117171	337117131711733
3171711713171171713	7733711713171173377
1113171711713171171713111	777337117131711733777
71917	71917
77771917777	77771917777
17177771917777171	91177771917777119
771717777191777717177	999117777191777711999
17717177771917777171771	1999911777719177771199991

Above examples are just chosen randomly. The aim of this work is to bring all the palprimes of lengths 3 and 5 having the same digits as of first palprime. In case of length 3, there are 15 palprimes, and in case of length 5, there are 93 palprimes. These are given in subsequent two sections.

4 Same Digits Palprimes for Length 3

This section brings embedded palprimes of length 3 having the same digits as of initial palprimes.

1

101
 1110110110111
 101110111101101101111011101
 10000111011101111011011011110111011100001
 11100110000111011101111011011011110111011100001100111
 1111101111001100001110111011110110110111101110111000011001111011111
 1000011111101111001100001110111011110110110111101110111000011001111011111100001
 100110000111111011110011000011101110111101101101111011101110000110011110111111000011001
 11111011001100001111110111100110000111011101111011011011110111011100001100111101111110000110011011111

2

131
 11311
 13111311131
 331311131113133
 1333333131113111313333331
 11111133333313111311131333333111111
 13311111111333333131113111313333331111111331
 3331331111111333333131113111313333331111111331333
 333313311111113333331311131113133333311111113313333
 11133313333133111111133333313111311131333333111111133133331333111

3

151
 11111151111111
 15155111111511111155151
 151515155111111511111155151515151
 15115151515155111111511111155151515151151
 111511511515151515511111151111115515151515115115111
 115111151151151515151551111115111111551515151511511511111511
 15111511511115115115151515155111111511111155151515151151151111151151111511511151
 1551115151115115111151151151515151551111115111111551515151511511511111511511151151115115111551

4

181
 111181111
 11111811111
 1111118111111
 118811111181111118811
 188118811111181111118811881
 18181881188111111811111188118818181
 181818188118811111181111118811881818181
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 1118118818118181818811881111118111111881188181818118188118111

5

191
 9919199
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 991999999191999999199
 1919991999999191999999199191
 919111919991999999191999999199919111919
 11119191119199919999991919999991999191119191111
 999111111919111919991999999191999999199919111919111111999
 11191199991111119191119199919999991919999991999191119191111119999119111
 111991119119999111111919111919991999999191999999199919111919111111999911911199111

6

313
 3331333
 1133331333311
 3131133331333311313
 3333131133331333311313333
 3113333131133331333311313333113
 3333113333131133331333311313333113333
 13333311333313113333133331131333311333331
 11113333311333313113333133331131333311333331111
 311311111333331133331311333313333113133331133333111113113

10

727
 7772777
 7777772777777
 77777777277777777
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 72777777777777727777777777727
 772777777777777277777777777277
 772727727777777777777277777777777272727277
 772772727727272727777777777277777777777272727272727
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11

757
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 7757577755775775577757577
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 7577757775575757755577577755775775577757755577575577757757
 77577757775777557575775557757775577577557775775557757557775777577757
 77777775777577757775575757755577577755775775577757755577575577757775777577775777777777777

12

787
 7778777
 78877778777887
 78788777877788787
 7777878877778777887877777
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13

797
77977
9779779
997797797797799
79977977977977997
9777799779779779779977779
797797777997797797797799777797797
777977997797777997797797797799777797797799779777
77797779779977977779977977977977997777977977997797779777

14

919
911919119
9191191911919
9999191191911919999
119199991911919119199991911
99991191999919119191191999919119999
99999991191999919119191191999919119999999
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19119999999119199991911919119199991911999999991191
911119111911999999991191999919119191191999919119999999911911191119

15

929
92299299229
9922992992299
92999992299299229999929
992929299999229929922999992929299
92999929292999992299299229999929292999929
992929929999292929999922992992299999292929999299299
999299992292999292992999922992992299999292929999299299992999
9292999929999229299929299299992299299229999929292999929999299992999

5 Same Digits Palprimes for Length 5

This section brings embedded palprimes of length 5 having the same digits as of initial palprimes. These separated in four subsections for palprimes starting from 1, 3, 5 and 9.

5.1 Palprimes Starting from 1

1

10301
 3103013
 131030131
 1113103013111
 311131030131113
 1331113103013111331
 1111331113103013111331111
 30111113311131030131113311111103
 11130111113311131030131113311111103111
 331113011111331113103013111331111110311133

2

10501
 111050111
 15011110501111051
 1001150111105011110511001
 110510011501111050111105110015011
 1150111051001150111105011110511001501110511
 101111501110510011501111050111105110015011105111101
 1050110111150111051001150111105011110511001501110511110110501
 100110501101111501110510011501111050111105110015011105111101105011001
 151155100110501101111501110510011501111050111105110015011105111101105011001551151

3

10601
 110111060111011
 11011101110601110111011
 160611101110111060111011101116061
 166160611101110111060111011101116061661
 1610116616061110111011106011101110111606166110161
 1066611610116616061110111011106011101110111606166110161166601
 1661611066611610116616061110111011106011101110111606166110161166601161661
 11016166161106661161011661606111011101110601110111011160616611016116660116166161011
 1101110161661611066611610116616061110111011106011101110111606166110161166601161661610111011

4

11311
 13111311131
 331311131113133
 1333333131113111313333331
 11111133333313111311131333333111111
 13311111111333333131113111313333331111111331
 3331331111111333333131113111313333331111111331333
 333313311111113333331311131113133333311111113313333
 11133313333133111111133333313111311131333333111111133133331333111
 333331113331333313311111113333331311131113133333311111113313333133311133333

5

11411
 1114111
 11114111411141111
 111141114111411111
 11141111114111411141111114111
 14414111111411111141114111411111141111114141
 14114114414111111411111141114111411111141111141441141141
 1111111411411441411111141111114111411141111114111114144114114111111
 141111111111411411441411111141111114111411111141111141441141141111111141
 14414411141111111111411411441411111411111411141111114111114144114114111111114111441441

6

12421
 141242141
 11412421411
 14111412421411141
 1212141114124214111412121
 112212121411141242141114121212211
 124111221212141114124214111412121221111421
 12411124111122121214111412421411141212122111142111421
 1424124111241111221212141114124214111412121221111421114214241
 111114241241112411112212121411141242141114121212211114211142142411111

7

12721
 111272111
 11112721111
 771111272111177
 1277111127211117721
 721212771111272111177212127
 17117212127711112721111772121271171
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 112711171711721212771111272111177212127117171117211
 11211127111717117212127711112721111772121271171711172111211

8

12821
 121282121
 11212821211
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 121118211121282121112811121
 1211112111821112128212111281112111121
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 111111112112111121118211121282121112811121111211211111111
 11288111111111211211112111821112128212111281112111121121111111111188211

9

13331
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10

13831
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 33813831833
 1338138318331
 11133813831833111
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 313338111111133813831833111111833313
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 13338813133381111111338138318331111118333131883331

11

13931
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12

14341
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 34313114341131343
 13434313114341131343431
 1134343131143411313434311
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13

14741
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 77111114741111177
 11177111114741111177111
 77111177111114741111177111177
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 14177111177111114741111177111177141
 1414141771111771111147411111771111771414141
 71711141414177111177111114741111177111177141414111717
 7774717111414141771111771111147411111771111771414141117174777

14

15451
 151545151
 15411515451511451
 115111541151545151145111511
 14411151115411515451511451115111441
 1511144111511154115154515114511151114411151
 115111441115111541151545151145111511144111511
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15

15551
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 111551555155111
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16

16061
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17

16361
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18

16561
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 16511551161611161561561116151516561515161116516516111616115511561

19

16661
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20

17471
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21

17971
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22

18181
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 1881811111818118188181818818118181111181881
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23

18481
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24

19391
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25

19891
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26

19991
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 991999199
 991991999199199
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 191991919191191119991991991999199199199911191191919199191
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5.2 Palprimes Starting from 3

27

30103
 333010333
 33330103333
 13133330103333131
 311313333010333313113
 31133113133330103333131133113
 33131133113133330103333131133113133
 113313113311313333010333313113311313311
 331113313113311313333010333313113311313311133
 303331113313113311313333010333313113311313311133303

28

30203
 3202302032023
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 3232303023202302032023203032323
 33203323230302320230203202320303232330233
 3332033232303023202302032023203032323302333
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 33230232022333203323230302320230203202320303232330233322023203233
 333323023202233320332323030232023020320232030323233023332202320323333
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29

30403
 3304033
 333040333
 3333304033333
 3003333333040333333003
 333033003333333040333333300330333
 304403333033003333333040333333300330333304403
 303043304403333033003333333040333333300330333304403340303
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30

30703
 3307033
 7733307033377
 777333070333777
 707777333070333777707
 707707777333070333777707707
 77377077077773330703337777077077377
 7773773770770777733307033377770770773773777
 737777737737707707777333070333777707707737737777737
 30337377777377377077077773330703337777077077377377777373303

31

30803
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 333333080333333
 33333330803333333
 38833333330803333333883
 3838838833333333080333333388388383
 383383883883333333080333333388388383383
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 330833808383383883883333333080333333388388383383808338033
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32

31013
 3310133
 111133101331111
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 131111133101331111131
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 130011331110011113111113310133111113111100111133110031

33

31513
 3315133
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 1111315113315133115131111
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37

34543
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38

34843
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39

35053
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40

35153
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41

35353
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42

35753
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43

36263
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44

36563
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45

37273
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46

37573
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47

38083
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48

38183
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49

38783
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5.3 Palprimes Starting from 7

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5.4 Palprimes Starting from 9

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