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2017 - Mathematical Style

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Abstract

This short paper brings representations of 2017 in different situations. These representations are with running numbers, single digit, single letter, Triangular, Fibonacci, palindromic-type, prime numbers, embedded, repeated, etc.

An equation means nothing to me unless it expresses a thought of God.
- S. Ramanujan

The work is divided in 17 sections according to details below:

1 Single Digit Representations

- **Digits: 2, 0, 1 and 7**

$$\begin{aligned}2017 &:= (2\times 22)^2+(2+2/2)^{2+2}.\\ &:= (0!+0!)^{(0!+0!+0!)!\times(0!+0!)-0!}\\ &\qquad -(0!+0!)^{0!+0!+0!+0!+0!}+0!.\\ &:= 1+1+(1+1)^{11}-11\times(1+1+1).\\ &:= 7+7/7+7\times(7\times(7\times 7-7)-7).\end{aligned}$$

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- **All Digits: 1, 2, 3, 4, 5, 6, 7, 8 and 9**

$$\begin{aligned}
2017 &:= 1+1+(1+1)^{11}-11\times(1+1+1)\\
&:= (2\times 22)^2+(2+2/2)^{2+2}\\
&:= 3/3+(3+3)\times(3+333)\\
&:= 4/4+(4+4)\times(4^4-4)\\
&:= 5+5^5-(5+5+5555)/5\\
&:= 6/6+6\times(6+66\times(6-6/6))\\
&:= 7+7/7+7\times(7\times(7\times 7-7)-7)\\
&:= 8/8+8\times 8\times(8\times 8\times 8-8)/(8+8)\\
&:= (9+(9+9)\times(9+999))/9.
\end{aligned}$$

Details: *https://arxiv.org/abs/1502.03501.*

2 Single Letter Representation

$$2017 := \frac{\frac{aaaaa-a}{aa}\times(a+a)-a-a-a}{a},$$

where, $aaaaa = a10^4+a10^3+a10^2+a10+a$,
$aa = a10+a,\ a\in\{1,2,3,4,5,6,7,8,9\}$.

Details: *http://rgmia.org/papers/v18/v18a73.pdf.*

3 Crazy Representations

- **Numbers Up to 6, 7, 8 and 9 with Reverse**

$$\begin{aligned}
2017 &:= 1+(2+34)\times 56 && = (65-\sqrt{4})\times 32+1\\
&:= 1+(-2+34)\times(56+7) && = 7\times 6\times(5+43)+2-1\\
&:= 1^{23}+4\times(56+7)\times 8 && = 8+7\times(6\times(5+43)-2+1)\\
&:= 12^3+4\times 56+7\times 8+9 && = 98+7\times 6+5^4\times 3+2\times 1.
\end{aligned}$$

Details: *http://rgmia.org/papers/v19/v19a129.pdf.*
https://arxiv.org/abs/1302.1479.

- **Numbers from 1 to 10 and Reverse**
  - **Increasing Order**

$$2017 := -1 + 2 + 3 \times 4/(5 \times 6) \times 7 \times 8 \times 9 \times 10.$$

  - **Decreasing Order**

$$\begin{aligned} 2017 &:= 10 \times 9 \times 8 \times 7/(6 \times 5) \times 4 \times 3 + 2 - 1. \\ &:= 10 \times 9 \times 8 \times 7 \times 6/(5 + 4 + 3 \times 2) + 1. \end{aligned}$$

4 Prime Numbers

$$2, 7, 17, 71, 107, 127, 271, 701, 2017$$

5 Power Representations

- **Power 2**

$$\begin{aligned} 2017 &:= 9^2 + 44^2 \\ &:= 12^2 + 28^2 + 33^2 \\ &:= 21^2 + 26^2 + 30^2 \\ &:= 18^2 + 21^2 + 24^2 + 26^2 \\ &:= 14^2 + 19^2 + 20^2 + 22^2 + 24^2 \\ &:= 7^2 + 15^2 + 17^2 + 21^2 + 22^2 + 23^2. \end{aligned}$$

- **Power 3**

$$\begin{aligned} 2017 &:= 1^3 + 2^3 + 4^3 + 6^3 + 12^3 \\ &:= 2^3 + 4^3 + 6^3 + 9^3 + 10^3 \\ &:= 1^3 + 3^3 + 4^3 + 5^3 + 6^3 + 7^3 + 8^3 + 9^3. \end{aligned}$$

6 Digits 2, 0, 1 and 7

- **Power 2**

$$2017 := (2-0!+17)^2+(20+1^7)^2+ \\ +((2+0!)\times(1+7))^2+(20-1+7)^2.$$

$$:= (20+1-7)^2+(20-1^7)^2+(20\times 1^7)^2+ \\ +(-2+(\sqrt{-0!+17})!)^2+((2+0!)\times(1+7))^2$$

$$:= (2\times 0\times 1+7)^2+(-2+017)^2+(2\times 0+17)^2+ \\ +(20+1^7)^2+(-2+(\sqrt{-0!+17})!)^2+((2+0!)!+17)^2.$$

- **Power 3**

$$2017 := (2\times 0+1^7)^3+(2+0\times 17)^3+(-2-01+7)^3+ \\ +(2\times 0-1+7)^3+(20-1-7)^3.$$

$$:= (2+0\times 17)^3+(-2-01+7)^3+(2\times 0-1+7)^3+ \\ +(2+0\times 1+7)^3+(2+01+7)^3.$$

$$:= (2\times 0+1^7)^3+(20-17)^3+(-2-01+7)^3+ \\ +(-2\times 01+7)^3+(2\times 0-1+7)^3+ \\ +(2\times 0\times 1+7)^3+(2-01+7)^3+(2+0\times 1+7)^3.$$

7 Same Digits

- **Multiplication**

$$2017\times 3404 = 1702\times 4034$$
$$2017\times 6808 = 1702\times 8068.$$

- **Addition**

$$\begin{aligned}2017 &:= 4^4+41^2+77^0+79^1 && = 44+412+770+791.\\ &:= 1^4+44^2+77^0+79^1 && = 14+442+770+791.\\ &:= 2^4+2^8+4^2+12^3+180^0 && = 24+28+42+123+1800.\\ &:= 1^1+3^6+5^4+5^4+6^2+180^0 && = 11+36+54+54+62+1800.\end{aligned}$$

- **Powers and Bases**

  - **Sequential: Starting With 0**

$$\begin{aligned}2017 &:= 0^1-1^0+2^5+3^6-4^3+5^2+6^4\\ &:= 0^2+1^6+2^7+3^5+4^0+5^1+6^4+7^3\\ &:= 0^7+1^8+2^6+3^5+4^0+5^1+6^4+7^3+8^2\\ &:= 0^6+1^9+2^7-3^8+4^4+5^0+6^5+7^3+8^2+9^1.\end{aligned}$$

  - **Sequential: Starting With 1**

$$\begin{aligned}2017 &:= -1^1+2^5+3^6-4^3+5^2+6^4\\ &:= 1^1+2^8+3^7-4^9-5^5+6^3+7^4+8^6+9^2.\end{aligned}$$

  - **Non Sequential**

$$2017 := 2^3+3^6-4^2+6^4.$$

Details: *http://rgmia.org/papers/v19/v19a31.pdf.*
http://rgmia.org/papers/v19/v19a131.pdf

8 Upside Down, Mirror Looking and Symmetric

- **Upside Down**

  - **Digits: 1, 6 and 9**

$$\begin{aligned}2017 &:= (1+1+1)\times(6+9)+11+1961\\ &:= 1+6+9+69\times(1+1+1+11+6+9)\\ &:= 1+1+1+1+(1+1+1)\times(619+6+9)+96+9+6.\end{aligned}$$

- **Digits: 0, 1, 6 and 9**

$$\begin{aligned}2017 &:= 9 + 1001 + 1001 + 6\\ &:= 9 + 69 + 609 + 619 + 609 + 96 + 6\\ &:= (1+1)\times(1+6+9+69+619) + 609\\ &:= 1 + 6 + 9 + 69 + 619 + 609 + 619 + 69 + 9 + 6 + 1.\end{aligned}$$

- **Upside Down and Mirror Looking**

$$2017 := 2 + 1001 + 8 + 1001 + 5.$$

- **Upside Down, Mirror Looking and Symmetric**

$$\begin{aligned}2017 &:= 1 + 1 + 1001 + 11 + 1001 + 1 + 1.\\ &:= 2 + 5 + 1001 + 1 + 1001 + 5 + 2.\end{aligned}$$

In case of 2 and 5, the numbers are written in digital form. Looking in mirror, 2 becomes 5 and 5 becomes 2.

9 Running Expressions: Triangular and Fibonacci

- **Increasing Order: 1 to 9**

$$\begin{aligned}2017 &:= 1 + T(2^3 + T(T(4))) &&= T(56+7) - 8 + 9.\\ &:= 1^2 + T(3 + 4\times T(5)) &&= -F(6) + (F(F(7)) - 8)\times 9.\end{aligned}$$

- **Decreasing Order: 9 to 1**

$$2017 := 9\times 8\times T(7) + 6 - 5 = T((T(T(4))) + T(3) + 2) + 1.$$

10 Increasing and Decreasing Orders: Triangular and Fibonacci

$$2017 := 1^2 + T(3 + 4\times T(5)) = 5 - 4 + T(3\times 21).$$

$$\begin{aligned}2017 := 1 + (2+34)\times 56 &= F(F(6))\times(5 - F(F(4)))\times 32 + 1\\ &= (6-5)^4 + T(3\times 21)\\ &= -T(6) + T(5) + T(4^3) - 2 - T(10).\end{aligned}$$

$$2017 := 1-(2-34)\times(56+7)$$
$$:= T(F(7)+6)+T(5+F(T(4)))-F(F(3)^2)\times 1.$$

$$2017 := 12-3!-T(4)+5+6\times 7\times 6\times 8;$$
$$:= 8\times F(7)-F(6)\times 5+T(4^3-2\times 1).$$

$$2017 := -(1+2)^3-4+5+6\times T(7)\times\sqrt{T(8)}+T(T(9))$$
$$:= 9\times 8\times T(7)+T(65-\sqrt{4})/T(3\times 21).$$

$$2017 := (9+8)\times F(F(7))-6^5/4 = -4+5+F(6)\times(7+F(8))\times 9$$
$$= 45\times(-6+T(7))-8+T(T(9)).$$

11 Functional Representations

- **Fibonacci Sequences**

$$2017 := F(2)+F(6)+F(9)+F(14)+F(17).$$

- **Polygonal-Type**

$$\begin{aligned}
\textbf{Triangle: } T(x) &= x(x+1)/2 &&\rightarrow\ 2017 := T(1)+T(63)\\
\textbf{Square: } Q(x) &= x^2 &&\rightarrow\ 2017 := Q(9)+Q(44)\\
\textbf{Pentagonal: } P(x) &= x(3x-1)/2 &&\rightarrow\ 2017 := P(1)+P(20)+P(31).\\
\textbf{Hexagonal: } H(x) &= x(2x-1) &&\rightarrow\ 2017 := H(1)+H(32).\\
\textbf{Heptagonal: } S(x) &= x(5x-3)/2 &&\rightarrow\ 2017 := S(10)+S(27).\\
\textbf{Octagonal: } E(x) &= x(3x-2) &&\rightarrow\ 2017 := E(16)+E(21).
\end{aligned}$$

12 Same Digits: Fibonacci Sequence Values

$$2017 := (2+0\times 1+7)^2+(2\times(0!+F(1+7)))^2$$
$$:= (20-1-7)^2+(20+1+7)^2+(20\times 1+F(7))^2$$
$$:= (20+1^7)^2+(20-1+7)^2+(2\times(0!+1+F(7)))^2.$$

13 Days of Month with Digits 2, 0, 1 and 7

- **Increasing and Decreasing**

$$
\begin{aligned}
1 &:= 2+0-1^7 && = -7+10-2.\\
2 &:= 2+0\times 17 && = 7-10/2.\\
3 &:= 20-17 && = 7-1-0!-2.\\
4 &:= -2-01+7 && = 7-1-02.\\
5 &:= -2\times 01+7 && = 7\times 1-02.\\
6 &:= 2\times 0-1+7 && = 7+1-02.\\
7 &:= 2\times 0\times 1+7 && = 7\times 1+0\times 2.\\
8 &:= 2-01+7 && = 7+1+0\times 2.\\
9 &:= 2+0\times 1+7 && = (-7+10)^2.\\
10 &:= 2+01+7 && = 7+1+02.\\
11 &:= 2+0!+1+7 && = 7+1+0!+2.\\
12 &:= 20-1-7 && = 7+10/2.\\
13 &:= 20\times 1-7 && = -7+10\times 2.\\
14 &:= 20+1-7 && = (7\times 1+0)\times 2.\\
15 &:= -2+0+17 && = 7+10-2.\\
16 &:= 2\times (01+7) && = (7+1+0)\times 2.\\
17 &:= 2\times 0+17 && = -7+(1+0!+2)!.\\
18 &:= 2-0!+17 && = (7+1+0!)\times 2.\\
19 &:= 20-1^7 && = 7+10+2.\\
20 &:= 20\times 1^7 && = F(7+1)+0!-2.\\
21 &:= 20+1^7 && = 7\times (1+02).\\
22 &:= -2+(\sqrt{-0!+17})! && = F(7+1)-0!+2.\\
23 &:= (2+0!)!+17 && = F(7+1)+02.\\
24 &:= (-2-01+7)! && = (7-1-02)!.\\
25 &:= F((2+0!)!)+17 && = (7-1-0!)^2.\\
26 &:= 20-1+7 && = F(7\times 1+0)\times 2.\\
27 &:= 20\times 1+7 && = 7+10\times 2.
\end{aligned}
$$

$$\begin{aligned}
28 &:= 20+1+7 && = (7-1-02)!.\\
29 &:= F((2+0!)!)+F(1+7) && = 7+1+F(F((0!+2)!).\\
30 &:= 2\times(0!+1+F(7)) && = (F(7)+1+0!)\times 2.\\
31 &:= (2+0!+1)!+7 && = 7+(1+0!+2)!.
\end{aligned}$$

The numbers 25, 29 and 30 are the only written in "Fibonacci sequence values". And 22 is the only number that requires to write using square-root. In the reverse order, the numbers 20, 22, 23, 26 29 and 30 are with Fibonacci sequence values.

- **Using Twice the Digits 2, 0, 1 and 7**

$1 := 20+1-7-20\times 1+7.$
$2 := 2+0\times 172017.$
$3 := 20+172\times 0-17.$
$4 := 20+1+72\times 0-17.$
$5 := 2+0\times 17+20-17.$
$6 := 20-17+20-17.$
$7 := 20172\times 0\times 1+7.$
$8 := 20172\times 0+1+7.$
$9 := 2+0\times 17201+7.$
$10 := 20+17-20\times 1-7.$

$11 := 20+17-20+1-7.$
$12 := 20\times 1+7+2-017.$
$13 := 20+1+7+2-017.$
$14 := 2\times 0+17-20+17.$
$15 := 20-1-7+20-17.$
$16 := 2+017-20+17.$
$17 := 20172\times 0+17.$
$18 := 20+17-2-017.$
$19 := 2+0\times 1720+17.$
$20 := 20+17+2\times 0-17.$
$21 := 2+0\times 17+2+017.$
$22 := 20-17+2+017.$
$23 := 20+17-20-1+7.$
$24 := 20\times 1+7-20+17.$
$25 := 20+1+7-20+17.$
$26 := 20\times 1-7+20\times 1-7.$
$27 := 20\times 1-7+20+1-7.$
$28 := 2+0\times 17+20-1+7.$
$29 := 20-17+20-1+7.$
$30 := 20-17+20\times 1+7.$
$31 := 20+1+7+20-17.$

In previous subsection, we worked with increasing and decreasing order of digits 2, 0, 1 and 7 to write days of month. Some numbers are written in terms of Fibonacci sequence values. Using twice the digits of 2017 as 20172017, the days of month can be written just using ***addition, subtraction and multiplications.***

14 Palindromic-Type

- **Type 1: Multiplication**

$$\mathbf{2017}\,73 \times 37\,\mathbf{7102} = 111386 \times 683111.$$

$$\mathbf{2017}\,033 \times 330\,\mathbf{7102} = 1105306 \times 6035011.$$
$$\mathbf{2017}\,026 \times 620\,\mathbf{7102} = 3108204 \times 4028013.$$

$$\mathbf{2017}\,0443 \times 3440\,\mathbf{7102} = 22328013 \times 31082322.$$
$$\mathbf{2017}\,0626 \times 6260\,\mathbf{7102} = 31082604 \times 40628013.$$
$$\mathbf{2017}\,1262 \times 2621\,\mathbf{7102} = 13128204 \times 40282131.$$
$$\mathbf{2017}\,1333 \times 3331\,\mathbf{7102} = 11135306 \times 60353111.$$
$$\mathbf{2017}\,1554 \times 4551\,\mathbf{7102} = 11135428 \times 82453111.$$
$$\mathbf{2017}\,2165 \times 5612\,\mathbf{7102} = 22167015 \times 51076122.$$
$$\mathbf{2017}\,2264 \times 4622\,\mathbf{7102} = 23148204 \times 40284132.$$

$$\mathbf{2017}\,2273 \times 3722\,\mathbf{7102} = 24158013 \times 31085142.$$
$$\mathbf{2017}\,2336 \times 6332\,\mathbf{7102} = 21165306 \times 60356112.$$
$$\mathbf{2017}\,2456 \times 6542\,\mathbf{7102} = 31085424 \times 42458013.$$
$$\mathbf{2017}\,2639 \times 9362\,\mathbf{7102} = 31085706 \times 60758013.$$
$$\mathbf{2017}\,3184 \times 4813\,\mathbf{7102} = 24159104 \times 40195142.$$
$$\mathbf{2017}\,3266 \times 6623\,\mathbf{7102} = 33168204 \times 40286133.$$
$$\mathbf{2017}\,3322 \times 2233\,\mathbf{7102} = 11136404 \times 40463111.$$

$$\mathbf{2017}\,3339 \times 9333\,\mathbf{7102} = 31195306 \times 60359113.$$
$$\mathbf{2017}\,3543 \times 3453\,\mathbf{7102} = 11136526 \times 62563111.$$
$$\mathbf{2017}\,3764 \times 4673\,\mathbf{7102} = 11136648 \times 84663111.$$
$$\mathbf{2017}\,4268 \times 8624\,\mathbf{7102} = 40288134 \times 43188204.$$
$$\mathbf{2017}\,4286 \times 6824\,\mathbf{7102} = 31088244 \times 44288013.$$
$$\mathbf{2017}\,4352 \times 2534\,\mathbf{7102} = 11055264 \times 46255011.$$
$$\mathbf{2017}\,4469 \times 9644\,\mathbf{7102} = 31088526 \times 62588013.$$

$$\mathbf{2017}\,5532 \times 2355\,\mathbf{7102} = 11137624 \times 42673111.$$
$$\mathbf{2017}\,5753 \times 3575\,\mathbf{7102} = 11137746 \times 64773111.$$
$$\mathbf{2017}\,5974 \times 4795\,\mathbf{7102} = 11137868 \times 86873111.$$
$$\mathbf{2017}\,6363 \times 3636\,\mathbf{7102} = 11056366 \times 66365011.$$
$$\mathbf{2017}\,7742 \times 2477\,\mathbf{7102} = 11138844 \times 44883111.$$
$$\mathbf{2017}\,7963 \times 3697\,\mathbf{7102} = 11138966 \times 66983111.$$
$$\mathbf{2017}\,8374 \times 4738\,\mathbf{7102} = 11057468 \times 86475011.$$
$$\mathbf{2017}\,9043 \times 3409\,\mathbf{7102} = 10071386 \times 68317001.$$

- **Type 2: Addition and Multiplication**

$$10011 \times \mathbf{2017} + \mathbf{7102} \times 11001 = 20192187 + 78129102$$
$$10101 \times \mathbf{2017} + \mathbf{7102} \times 10101 = 20373717 + 71737302$$
$$10111 \times \mathbf{2017} + \mathbf{7102} \times 11101 = 20393887 + 78839302$$
$$11001 \times \mathbf{2017} + \mathbf{7102} \times 10011 = 22189017 + 71098122.$$

$$100011 \times \mathbf{2017} + \mathbf{7102} \times 110001 = 201722187 + 781227102$$
$$100101 \times \mathbf{2017} + \mathbf{7102} \times 101001 = 201903717 + 717309102$$
$$100111 \times \mathbf{2017} + \mathbf{7102} \times 111001 = 201923887 + 788329102$$
$$101001 \times \mathbf{2017} + \mathbf{7102} \times 100101 = 203719017 + 710917302$$
$$101011 \times \mathbf{2017} + \mathbf{7102} \times 110101 = 203739187 + 781937302$$
$$110011 \times \mathbf{2017} + \mathbf{7102} \times 110011 = 221892187 + 781298122$$
$$111001 \times \mathbf{2017} + \mathbf{7102} \times 100111 = 223889017 + 710988322$$
$$110001 \times \mathbf{2017} + \mathbf{7102} \times 100011 = 221872017 + 710278122.$$

Details: *http://rgmia.org/papers/v19/v19a159.pdf.*

15 Palindromic-Type Patterns: Addition and Multiplication

$$\begin{aligned}
\mathbf{2017} \times 10001 + 10001 \times \mathbf{7102} &= \mathbf{2017}\,\mathbf{2017} + \mathbf{7102}\,\mathbf{7102} \\
\mathbf{2017} \times 100001 + 100001 \times \mathbf{7102} &= \mathbf{2017}\,0\,\mathbf{2017} + \mathbf{7102}\,0\,\mathbf{7102} \\
\mathbf{2017} \times 1000001 + 1000001 \times \mathbf{7102} &= \mathbf{2017}\,00\,\mathbf{2017} + \mathbf{7102}\,00\,\mathbf{7102} \\
\mathbf{2017} \times 10000001 + 10000001 \times \mathbf{7102} &= \mathbf{2017}\,000\,\mathbf{2017} + \mathbf{7102}\,000\,\mathbf{7102}.
\end{aligned}$$

$$\begin{aligned}
3\mathbf{7102}1 \times 101 + 101 \times 1\mathbf{2017}3 &= 37473121 + 12137473 \\
3\mathbf{7102}1 \times 1001 + 1001 \times 1\mathbf{2017}3 &= 371392021 + 120293173 \\
3\mathbf{7102}1 \times 10001 + 10001 \times 1\mathbf{2017}3 &= 3710581021 + 1201850173 \\
3\mathbf{7102}1 \times 100001 + 100001 \times 1\mathbf{2017}3 &= 3\mathbf{7102}4\mathbf{7102}1 + 1\mathbf{2017}4\mathbf{2017}3.
\end{aligned}$$

$$
\begin{aligned}
3\mathbf{7102}2 \times 101 + 101 \times 2\mathbf{2017}3 &= 37473222 + 22237473\\
3\mathbf{7102}2 \times 1001 + 1001 \times 2\mathbf{2017}3 &= 371393022 + 220393173\\
3\mathbf{7102}2 \times 10001 + 10001 \times 2\mathbf{2017}3 &= 3710591022 + 2201950173\\
3\mathbf{7102}2 \times 100001 + 100001 \times 2\mathbf{2017}3 &= 3\mathbf{7102571022} + 2\mathbf{2017520173}.
\end{aligned}
$$

$$
\begin{aligned}
3\mathbf{7102}3 \times 101 + 101 \times 3\mathbf{2017}3 &= 37473323 + 32337473\\
3\mathbf{7102}3 \times 1001 + 1001 \times 3\mathbf{2017}3 &= 371394023 + 320493173\\
3\mathbf{7102}3 \times 100001 + 100001 \times 3\mathbf{2017}3 &= 3\mathbf{7102671023} + 3\mathbf{2017620173}.
\end{aligned}
$$

$$
\begin{aligned}
3\mathbf{7102}4 \times 101 + 101 \times 4\mathbf{2017}3 &= 37473424 + 42437473\\
3\mathbf{7102}4 \times 1001 + 1001 \times 4\mathbf{2017}3 &= 371395024 + 420593173\\
3\mathbf{7102}4 \times 100001 + 100001 \times 4\mathbf{2017}3 &= 3\mathbf{7102771024} + 4\mathbf{2017720173}.
\end{aligned}
$$

$$
\begin{aligned}
3\mathbf{7102}5 \times 101 + 101 \times 5\mathbf{2017}3 &= 37473525 + 52537473\\
3\mathbf{7102}5 \times 1001 + 1001 \times 5\mathbf{2017}3 &= 371396025 + 520693173\\
3\mathbf{7102}5 \times 100001 + 100001 \times 5\mathbf{2017}3 &= 3\mathbf{7102871025} + 5\mathbf{2017820173}.
\end{aligned}
$$

$$
\begin{aligned}
3\mathbf{7102}6 \times 101 + 101 \times 6\mathbf{2017}3 &= 37473626 + 62637473\\
3\mathbf{7102}6 \times 1001 + 1001 \times 6\mathbf{2017}3 &= 371397026 + 620793173\\
3\mathbf{7102}6 \times 100001 + 100001 \times 6\mathbf{2017}3 &= 3\mathbf{7102971026} + 6\mathbf{2017920173}.
\end{aligned}
$$

$$
\begin{aligned}
3\mathbf{2017}1 \times 101 + 101 \times 1\mathbf{7102}3 &= 32337271 + 17273323\\
3\mathbf{2017}1 \times 1001 + 1001 \times 1\mathbf{7102}3 &= 320491171 + 171194023\\
3\mathbf{2017}1 \times 100001 + 100001 \times 1\mathbf{7102}3 &= 3\mathbf{2017420171} + 1\mathbf{7102471023}.
\end{aligned}
$$

$$
\begin{aligned}
3\mathbf{77102} \times 1001 + 1001 \times \mathbf{2017}73 &= 377479102 + 201974773\\
3\mathbf{77102} \times 10001 + 10001 \times \mathbf{2017}73 &= 3771397102 + \mathbf{2017}931773\\
3\mathbf{77102} \times 100001 + 100001 \times \mathbf{2017}73 &= 37710577102 + \mathbf{2017}7501773.
\end{aligned}
$$

Details: *http://rgmia.org/papers/v19/v19a159.pdf.*

16 Prime Numbers With 2017: Fixed Digits Repetitions

- **2017**0391
  2017039(81)1
  2017039(81)(81)1
  2017039(81)(81)(81)1
  2017039(81)(81)(81)(81)1
  2017039(81)(81)(81)(81)(81)1
  2017039(81)(81)(81)(81)(81)(81)1.

- 2082 **2017**
  208(81)2 **2017**
  208(81)(81)2 **2017**
  208(81)(81)(81)2 **2017**
  208(81)(81)(81)(81)2 **2017**
  208(81)(81)(81)(81)(81)2 **2017**
  208(81)(81)(81)(81)(81)(81)2 **2017** .

- 4 **2017** 813
  (63)4 **2017** 813
  (63)(63)4 **2017** 813
  (63)(63)(63)4 **2017** 813
  (63)(63)(63)(63)4 **2017** 813
  (63)(63)(63)(63)(63)4 **2017** 813
  (63)(63)(63)(63)(63)(63)4 **2017** 813.

- 13 **2017** 3
  (264)13 **2017** 3
  (264)(264)13 **2017** 3
  (264)(264)(264)13 **2017** 3
  (264)(264)(264)(264)13 **2017** 3
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- 358 **2017**
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- 100 **2017**
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- 6 **2017**
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- 5544 **2017**
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- 5589 **2017**
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17 Nested or Embedded Palindromic Prime Numbers

- **With 2017**

131
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9 **2017** 131 **7102** 9
39 **2017** 131 **7102** 93
939 **2017** 131 **7102** 939.

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33 **2017** 9 **7102** 33
333 **2017** 9 **7102** 333
9333 **2017** 9 **7102** 3339.

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33 **2017** 9 **7102** 33
333 **2017** 9 **7102** 333
7333 **2017** 9 **7102** 3337.

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7 **2017** 9 **7102** 7
97 **2017** 9 **7102** 79
10597 **2017** 9 **7102** 79501.

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17971
7 **2017** 9 **7102** 7
97 **2017** 9 **7102** 79
11997 **2017** 9 **7102** 79911.

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17971
91 **2017** 9 **7102** 19
991 **2017** 9 **7102** 199
9991 **2017** 9 **7102** 1999.

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17971
7 **2017** 9 **7102** 7
97 **2017** 9 **7102** 79
1497 **2017** 9 **7102** 7941.

797
17971
99 **2017** 9 **7102** 99
199 **2017** 9 **7102** 991
11199 **2017** 9 **7102** 99111.

797
17971
91 **2017** 9 **7102** 19
991 **2017** 9 **7102** 199
3991 **2017** 9 **7102** 1993.

797
17971
99 **2017** 9 **7102** 99
199 **2017** 9 **7102** 991
9199 **2017** 9 **7102** 9919.

- **With 2017 and Digits 2, 0, 1, 7**

7710 **2017** 7
1207710 **2017** 7021
121207710 **2017** 702121
12121207710 **2017** 70212121.

7710 **2017** 7
10127710 **2017** 72101
11010127710 **2017** 72101011.

7102101 **2017**
117102101 **2017** 11
7117102101 **2017** 117
127117102101 **2017** 11721.

7710 **2017** 7
71117710 **2017** 71117
10171117710 **2017** 71117101.

7710 **2017** 7
1027710 **2017** 7201
1021027710 **2017** 7201201.

7710 **2017** 7
71777710 **2017** 77717
1171777710 **2017** 7771711.

7710 **2017** 7
7117710 **2017** 7117
11177117710 **2017** 71177111.

7710 **2017** 7
70727710 **2017** 72707
1270727710 **2017** 7270721.

7710 **2017** 7
7217710 **2017** 7127
12717217710 **2017** 71271721.

7710 **2017** 7
72007710 **2017** 70027
1272007710 **2017** 7002721.

7710 **2017** 7
72217710 **2017** 71227
17772217710 **2017** 71227771.

7710 **2017** 7
110077710 **2017** 770011
1110077710 **2017** 7700111.

7710 **2017** 7
102127710 **2017** 721201
7102127710 **2017** 721 **2017** .

7710 **2017** 7
10 **2017** 710 **2017** 710201
1110 **2017** 710 **2017** 71020111.

7710 **2017** 7
121207710 **2017** 702121
12121207710 **2017** 70212121.

171020 **2017** 1
71171020 **2017** 117
72071171020 **2017** 117027.

7102111 **2017**
77102111 **2017** 7
77077102111 **2017** 7077.

107 **2017** 102701
171107 **2017** 102701171
1171107 **2017** 1027011711.

107 **2017** 102701
1770107 **2017** 1027010771
11770107 **2017** 10270107711.

11 **2017** 2710211
11211 **2017** 2710211211
1111211 **2017** 271021121111.

11 **2017** 2710211
11211 **2017** 2710211211
1111211 **2017** 271021121111.

7 **2017** 20271027
77 **2017** 202710277
1277 **2017** 20271027721.

Reference

I.J. TANEJA, Crazy Representations of Natural Numbers, Selfie Numbers, Fibonacci Sequence, and Selfie Fractions, *RGMIA Research Report Collection*, **19**(2016), Article 179, pp.1–37, *http://rgmia.org/papers/v19/v19a179.pdf*.