

Happy 51st Birthday, Mr. President!

Aziz S. Inan, Ph.D., Professor, Electrical Engineering, University of Portland, Portland, Oregon
August 4, 2012

August 4, 2012 marks US President Barack Obama's 51st birthday (his birth date is August 4, 1961, that is, 8041961 or 841961). Like I did last year [1], I submerged myself into the world of numbers related to Barack's birthday to see if I can unveil some hidden number coincidences and oddities that are noteworthy and fun to report. Here is a list of some of my new findings, please enjoy:

1. If calendar dates in each year are counted backwards starting from December 31st (as being the first day) towards January 1st (as the 365th or 366th day), Barack's birthday August 4th always corresponds to the 150th day and interestingly enough the reverse of 150 is 51, Barack's new age!
2. Also, one-eighth of reverse of 804 (representing August 4) equals to 51!
3. If 2012 is split as 201 and 2, twice the product of these two numbers yield 804, representing August 4th. In addition, one-half of reverse of 201 is 51! (Also, 201 equal 150 plus 51.)
4. Also 2012 equals four times 503 and 503 and its reverse (305) added-up minus four yield 804 (August 4). In addition, 503 is the 96th prime and reverse of one-half of 96 is 84 (also interpreted as August 4).
5. One-half of 84 (representing August 4) equal 42 and four times reverse of 84 is 192. (Note that the difference between 192 and 42 is 150.) The 42nd and 192nd prime numbers are 181 and 1163 and interestingly enough four times 181 times 1163 equals to 842012 (Barack's 51st birthday)!
6. From last year: Barack's birth year 1961 minus its reverse (1691) is 270. The 270th prime number is 1733. Amazingly, the product of numbers 61 (which is the rightmost two digits of 1961), its reverse (16), and 1733 results in $16 \times 61 \times 1733 = 1691408!$ (Hint: Read this number backwards.)
7. If 1961 is split as 19 and 61, double the difference of these two numbers yield 84 (August 4).
8. From last year: First, split Barack's birthday 8041961 as 8041 and 961. The sum of these two numbers equals 9002, which is reverse of 2009, the year Barack became the US President! Next, split 8041961 as 8, 04, 19, and 61, $8 + 4 + 19 + 61 = 92 = 2 \times 46$ where $46 - 2 = 44$ representing the 44th US Presidency! Also, $8 + 4 + 19 + 16$ (which is reverse of 61) = 47, the age at which Barack became the US President! So, numbers 2009, 44 and 47 that mark the beginning of Barack's US presidency are secretly coded in his birth date, agreed?
9. Another interesting property of Barack's birth date: The leftmost and the rightmost three digits of his birth year 1961 each is a perfect square number ($196 = 14 \times 14$ and $961 = 31 \times 31$). Similarly, the leftmost and the rightmost three digits of his full birth date 841961 each is a perfect square number ($841 = 29 \times 29$ and again $961 = 31 \times 31$).

In addition to the above, here is a partial list of Barack's near-future birthdays that possess some sort of unique numerical property:

10. Barack's next (52nd) birthday in 2013 is interesting since $2013 = 3 \times 11 \times 61$ where twice the sum of these three primes yield 150 (representing the 150th day August 4 of each year counting backwards).

11. His 53rd birthday in 2014 is special because if 2014 is split as 201 and 4, the product of these two numbers yields 804 (August 4th).
12. His 55th birthday in 2016 expressed as 842016 is divisible by 84 (August 4). Also, 2016 equal twice 804 (August 4th) plus 408 (which is reverse 804).
13. His 64th perfect square birthday coincides with perfect square year 2025 (45×45).
14. His 68th birthday in 2029 will be special since the sum of the numbers assigned to the letters of his full name "Barack Obama" (based on the English alphabet, A being 1, B being 2, etc.) is 68.
15. His 78th birthday in 2039 expressed as 842039 is unique for multiple reasons: First, the reverse of 842039 which is 930248 = $2 \times 2 \times 2 \times 11 \times 11 \times 31 \times 31$ and twice (or one-half) of this number is a perfect square. In addition, $31 + 31 + 11 + 11 - 2 - 2 - 2 = 78$. Third, twice the sum of 11 and 31 yield 84 (August 4). Fourth, if 2039 is split as 20 and 39, reverse 20 times 39 equal 78!
16. Barack will turn 84 (representing August 4) in 2045.
17. His 87th birthday in 2048 expressed in short as 8-4-48 (or simply 8448) is a palindrome day! (Note that 2048 is an extremely special year since it will become the highest-power year to occur because it equals the eleventh power of two.)
18. Barack's 120th birthday in 2081 is interesting because if his birth date 841961 is split as 8, 4, 19 and 61, the sum of the squares of these four numbers equals twice 2081.
19. His 151st palindrome birthday to occur hundred years later coincides with palindrome year 2112.

Happy 51st birthday Mr. President!

[1] A. S. Inan, "Happy birthday Mr. President, here are your numbers," *Portland Tribune*, August 3, 2011. http://thevig.portlandtribune.com/news/print_story.php?story_id=131234701484234300
(Note that an updated version of this reference titled, "A 50th "Prime" Birthday Gift for President Barack Obama," is available at the following address: <http://faculty.up.edu/ainan/publications.html>.)