America's 238th Birthday is a Numerical Brainteaser

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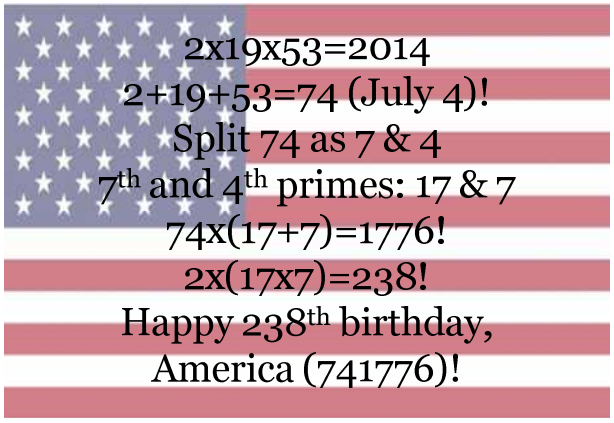

July 4, 2014 marks the 238th birthday of America and to celebrate, I constructed the following birthday brainteasers, which I hope you will enjoy:

1. The prime factors of 2014 (2, 19, and 53) add up to 74, and 74 and 2014 put side by side make 742014, that is, America's 238th birthday, July 4, 2014.[†] Wow! But wait, there's more!
2. Split 74 into digits 7 and 4. The 7th and 4th primes are 17 and 7. Interestingly enough, the sum of these primes (17+7) times 74 yields the historic year, 1776. Amazing!
3. In addition, twice the product of 17 and 7 result in 238, this year's birthday number. Isn't this like magic?
4. Also, note that numbers 74, 17, and 7 put side by side gives the first five digits (74177) of the historic date, 741776, and by introducing its "digit 6" completes it to 741776! This is really fun.

Happy 238th birthday, America!

[†]Before 2014, last time this property occurred was in 1917, which equals 3^3x71, where 3+71=74 (July 4). After 2014, this property will occur again in 2103, which equals 3x701, where primes 3 and 701 add up to 704, that is, again, July 4. After that, the next year that has this property is 2494, which equals 2x29x43, where primes 2, 29, and 43 add up to 74 (July 4). Which year after 2494 possess the same property? (Answer: 2542=2x31x41.)

Note: Another unique numerical property of the full date of the US Independence Day, when expressed as 07041776, is as follows[‡,*]: If split in the middle as 0704 and 1776, 0704 = 4 x 4 x 44 and 1776 = 4 x 444. Fascinating! I wonder if the founding fathers chose this day intentionally.

[‡]A. S. Inan, Benjamin Franklin Math Puzzler # 7—Independence Day-4th of July, *Franklin Gazette*, Vol. 18, No. 2, p. 11, Summer 2008.
[*]S. Doughton, "01/02/2010: Backward and forward, this date is lining up as a rarity," *The Seattle Times*, January 1, 2010.
http://seattletimes.com/html/localnews/2010668763_palindrome02.html