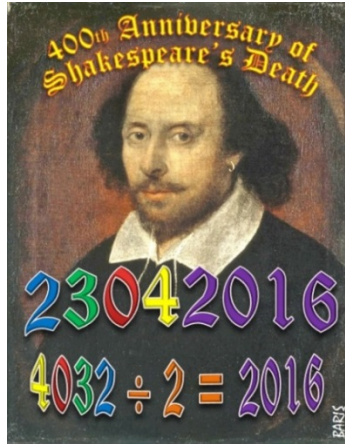


Commemorating the 400th Anniversary of Shakespeare's Death with Numbers

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March 20, 2016



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Saturday, 23 April 2016 will mark the 400th anniversary of the death of English playwright, poet and actor William Shakespeare, who by most is regarded as the greatest writer of the English language [1]. Shakespeare was born in April 1564, in Stratford-upon-Avon, Warwickshire, England and died in the same town on 23 April 1616 at age 52. His actual date of birth is unknown, but church records indicate that he was baptized on April 26 1564. Since three days was a customary waiting period before baptizing a newborn his birth date is traditionally observed as 23 April, which also coincides with the day he died.

Next month, April 23, 2016 will also mark the 452nd anniversary of Shakespeare's birth. To commemorate the quadricentennial anniversary of his death and celebrate his birthday, we constructed the following numerical brainteasers in his honor:

1. The 400th anniversary of Shakespeare's death can be expressed as 23-04-2016, or simply as 23042016, which possesses a unique numerical property. If split in the middle as 2304 and 2016, twice 2016 yields 4032 which is the reverse of 2304. Wow!
2. Furthermore, if this special date 23042016 is split in the middle as 2304 and 2016, the sum of these two numbers is 4320, the reverse of which equals 234 (0234 = 234) representing 23 April!
3. Interestingly enough, the difference of 2304 and 2016, which put side by side make 23042016, equals 288 which when multiplied by 8 yields back 2304. Also, 10 times 288 equals the product of the digits of 2341564 representing Shakespeare's accepted birthday 23-4-1564.
4. Shakespeare's 3rd and 12th birthdays occurred on dates 23041567 and 23041576 respectively. Note that both of these dates were numerically special because each was made of digits 0 to 7, each appearing only once. If Shakespeare lived longer, his 93rd and 111th birthdays would have had the same property.
5. If numbers 1 to 26 are assigned to the letters of the English alphabet, A as 1, B as 2, C as 3, etc., the sum of the numbers assigned to the letters of *William* and *Shakespeare* are 79 and 108, respectively. Interestingly enough, quadrupling 108 (*Shakespeare*) equals 432, which when reversed coincides with Shakespeare's birth date, 23-4 (23 April). Additionally, reverse of half of 234 is 711, which when divided by the sum of the digits of 234 gives 79 (*William*).

6. Shakespeare was born in a leap year and also died in a leap year. The 114th day of leap year 2016 is 23 April, Shakespeare's widely accepted birth date and the day he died. The sum of the prime factors of 114 is $2 + 3 + 19 = 24$ and the quadruple of square of 24 yields 2304 representing 23 April. Isn't this fun?
7. This year also marks Shakespeare's 452nd birthday where double the sum of the prime multipliers of 452 result in $2 \times (2 + 2 + 113) = 234$ (23 April). Additionally, twice the reverse of the sum of the squares of the digits of 452 yields 108 (*Shakespeare*).
8. Shakespeare died on 23-4-1616 or simply 2341616. If this date is split as 234 and 1616, 1616 equals 16 times 101 where twice the sum of 16 and 101 again yields 234.
9. The sum of the digits of Shakespeare's birth year 1564 equals 16 and two 16's put next to each other make 1616, the year Shakespeare died. Also, if 1616 is split as 16 and 16, the reverse of twice 16 yields 23, the square root of 16 is 4, and 23 and 4 put side by side as 234 coincides with Shakespeare's dates of birth and death.
10. Further, if Shakespeare's birth year 1564 is split as 15 and 64, the sum of these two numbers gives 79 (*William*).
11. The sum of the squares of the prime factors of 1564 (2, 17, and 23) equals 822 and the reverse of 822 is twice 114 where again, the 114th day of 1564 is Shakespeare's birth date, 23 April.
12. Moreover, half of 234 (23 April) is 117 and the 117th day of a leap year is 26 April, the day Shakespeare was baptized in 1564.
13. Lastly, 400 (the anniversary number of Shakespeare's death in 2016) plus its reverse, namely 004, equals 404 which when multiplied by 4 yields 1616, the year Shakespeare died.

So indeed, as demonstrated above, there are many numerically unique properties associated with the date of Shakespeare's birth and death, some of which are specific to the upcoming 400th anniversary of his death. Our hope is that through critical thinking and creativity, properties specific to future anniversaries of Shakespeare's birth and death can be discovered.

Happy 400th anniversary of Shakespeare's death!

[1] William Shakespeare, Wikipedia
https://en.wikipedia.org/wiki/William_Shakespeare