

## **Square Birthday Brings Lots of Squares to Brigitte Bardot**

(Aziz Inan, Electrical Engineering, University of Portland, Portland, Oregon)

(24 September 2015)



Brigitte Anne-Marie Bardot (born on 28 September 1934, in Paris, France) is a French former actress, singer, and fashion model, who later became an animal rights activist [1]. I enjoyed watching her movies in my early teenager years and admired her beauty.

Next Monday, 28 September 2015, Bardot will turn 81 and on this occasion, I prepared this brainteaser birthday gift for her:

1. Bardot's new age 81 is a special age. Why? First, 81 is a square number which equals  $9 \times 9$  (that is, the square of square 9), and interestingly enough, 9 plus 9 is 18, and the reverse of 18 yields back 81. Second, the square of the sum of the digits of 81 also yield back 81. Third, reverse of 81 equals 9 times 2, where 9 to the power 2 also results in 81. Fourth, if Bardot's birth year 1934 is split into its even- and odd-numbered digits as 94 and 13, these two numbers differ by 81. Wow! Are there any other squares in Bardot's life? You bet there are and here are some more.
2. Bardot's birth date, 28 September, can be expressed as two different square numbers: square 289 which equals  $17 \times 17$ , where  $17 = 1 + 9 + 3 + 4$  (the sum of the digits of her birth year 1934); or square 2809, which equals  $53 \times 53$ , where  $53 = 19 + 34$  (left and right halves of 1934). Isn't this fun?
3. The digits of Bardot's full birthday 28-09-1934 add up to square 36. In addition, if her birthday 28091934 is split as 28, 09, 19, and 34, these four numbers add up to 90, which equal the sum of squares 81 and 9.
4. The sum of the squares of the digits of Bardot's full birthday 28-09-1934 equals square 256 ( $16 \times 16$ ).
5. Before her 81<sup>st</sup> birthday, Bardot's previous square-number birthday (her 64<sup>th</sup>) was on 28-09-1998, with its digits adding up to reverse of 64 (46).
6. Bardot's 36<sup>th</sup> perfect square birthday occurred on 28-9-1970, with sum of digits also equal 36. Also, if date 2891970 is split as 289 and 1970, these two numbers differ by square 1681 ( $41 \times 41$ ).
7. Bardot turns 81 in 2015 where the prime factors of 2015 (5, 13, and 31) add up to square 49. In addition, if 2015 is split into 20 and 15, the difference of the reverses of these two numbers also yields 49.

8. If Bardot's 81<sup>st</sup> birthday expressed as 2892015 is split as 289 and 2015, these two numbers add up to square 2304, which equals  $48 \times 48$ . Similarly, the reverses of 289 and 2015 add up to square 6084 ( $78 \times 78$ ). In addition, if split as 28, 9, 20, and 15, the sum of the reverses of these four numbers yield square 144 ( $12 \times 12$ ).
9. If Bardot's 81<sup>st</sup> birthday is expressed as 28092015, this number equals  $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 5 \times 7 \times 367$ , where these ten primes add up to square 400 ( $20 \times 20$ ). Also, if one splits 28092015 as 28, 09, 20, and 15, the sum of these four numbers is 72, which equal the difference of squares 81 and 9. Also, the digits of 72 add up to square 9. Also the digits of 28092015 add up to 27, which equal the sum of the reverse of 81 and 9.
10. Bardot's next square age 100 is to occur in 2034. Interestingly enough, the sum of the digits of 2034 equals square 9. In addition, 2034 equals  $2 \times 3 \times 3 \times 113$ , where these four primes add up to square 121.

I hope you will enjoy reading my birthday gift with lots of squares Brigitte Bardot and happy 81<sup>st</sup> birthday!

[1] Brigitte Bardot, Wikipedia

[https://en.wikipedia.org/wiki/Brigitte\\_Bardot](https://en.wikipedia.org/wiki/Brigitte_Bardot)