Volume 11, Issue 8, August– 2026 International Journal of Innovative Science and Research Technology
ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26aug759

Beal Conjecture False as Exponents Raising Bases are Different than Multiplied Factors-Two Examples Provided

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Publication Date: 2026/09/10

Abstract: I show that multiplied factors can be different than exponents or powers raising bases. Beal conjecture can be seen as untrue. If I take a base and raise the base to a power or an exponent, that is different than factor multiplied the number of times as a factor multiplies a factor. 3^5 as a multiplied factor would give 15 as a multiplied factor. As an exponent power, 3^5 would give 125. 15 as a factor is different than 125 3 as a base raised to a power. The example 6^3 + 3^3 = 3^5 that was used by Dr. Gordon Williams, linked to University of Alaska editor at Mathematics Magazine in 2004, to show me how the Beal conjecture works is 6^3+ 3^3 = 3^5. As a multiplied factor, 15 would not equal 27 + 216. The exponential use of base is different than a multiplied factor. (1) We at one time in history used different words for base and factors. Words change constantly in their usage. This a difference in terms used between base and factors even now on major web site google.com accessed today on August 14,2026. Words like factors were once not the same as words like bases.

Keyword: *Bases, Exponents, Factors, Powers, Beal Conjecture.*

How to Cite: James Timothy Struck (2026) Beal Conjecture False as Exponents Raising Bases are Different than Multiplied Factors-Two Examples Provided. *International Journal of Innovative Science and Research Technology*, 11(8), 3259-3260. https://doi.org/10.38124/ijisrt/26aug759

I. INTRODUCTION

Two examples show that the Beal conjecture can be seen as false as exponential use of a base is different than multiplied factors. If I take a base and raise the base to the exponent or power, that is different than base multiplied the number of times as the factor. 3^5 as a multiplied factor would give 15 as a multiplied factor. As an exponent raising a base, 3^5 would give 125. 15 is different than 125. The example that was used by Dr. Gordon Williams, linked to University of Alaska editor at Mathematics Magazine in 2004 in peer review, to show me how the Beal conjecture works is 6^3+ 3^3 = 3^5. As a multiplied factor, 15 would not equal 27 + 216. The multiplied factor is different than an exponential use of base. (2) An example showing the Beal conjecture does not work is provided. This shows when one uses exponents for all three numbers, the result ends up being too large. We look at and study the example.

II. DISCUSSION

Multiplied factors are different than exponential use of bases. Multiplication of numbers called factors is different than an exponential use of a base. A different word is used in the two cases. “In math, regular multiplication uses factors (the numbers you multiply) and a product (the answer). Exponents use a base (the big number) and a power or exponent (the small raised number telling you how many times to repeat it).” (3) The 7 in the second case would be called a base and in the first case linked to Dr. Williams, the number 243 would be base number 3 raised to exponent 5. Factor is the incorrect word says mathematics accessed today. Factor is used for multiplication. “Factor: A number you multiply. Example: in 3 × 4, both 3 and 4 are factors.” (4) from Google accessed 8/14/2026. 3* 5 as a factor would only be 15 not 243.

- *Example*

7^4 +7^3 = 14^3

7*7*7*7 + 7*7*7 = 392 *7

2401 + 343 = 2744

2401+7^3= 2744

2401 + 343 = 2744

7* 7*7 *7 + 7* 7*7 = 392*7

7 is not the same type of factor in the two cases. An exponential use of a base of 7^4, shown here 7*7*7*7 is different than 392 * 7. The two sides are equal but do not have a common prime factor. 392 * 392 * 392* 392 * 392* 392 *

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26aug759

392 is different than 392 times 7, so exponent use of basis are different than multiplied factors.

An exponent is base times exponent number of times of the exponent while a multiplied factor is factor times factor once. This example shows Beal conjecture false as 392 multiplied by exponent the exponent number of times would be a very large number and not be equal. The factor of 7 is different on the two sides. On the left side, 7 is exponentiated and the right side the 7 is multiplied by the base. We have to see multiplication as different than exponentiation as one was invented in ancient times and one the exponent was invented in the Middle Ages and around Renaissance. We also use different terms on the two sides.

III. CONCLUSION

Exponentiation is different than multiplication. 7 * 392 is a multiplied factor and 7^4 is an exponential factor. The sides are different uses of 7. We should see exponent as different than multiplication as the two are different operations.

REFERENCES

[1]. Gordon Williams personal conversation with me in 2024 via email as the editor of Mathematics Magazine.
[2]. Ibid.
[3]. “What do product and exponent mean.” Paraphrased question From Google.com accessed 8/14/2026.
[4]. “What does factor mean.” Paraphrased question From google.com accessed 8/14/2026.