

# THE NUMBER OF BRICKS IN A ZIGGURAT

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ABSTRACT. The number of bricks in a ziggurat is a sum of consecutive squares.

**Theorem 1.** The number of square bricks in a hollow ziggurat  $n$  stories high and of base width  $n$  is  $n^2 + (n - 1)^2$ .

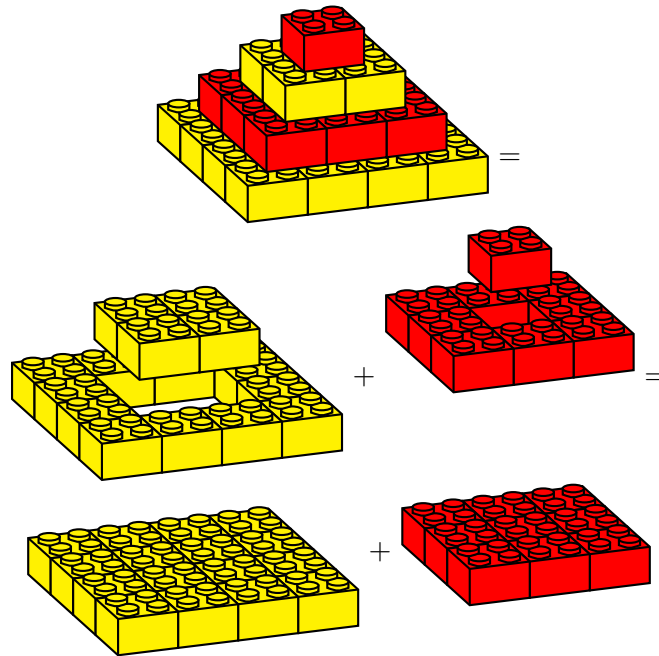


FIGURE 1

Recall that a *centered square* number is one that can be formed by placing one dot to serve as a center, and then by surrounding that center with square layers. Figure (2a) is a well-known visual proof that a *centered square* is the sum of consecutive squares (See Conway and Guy (1996, 41-2) and Deza and Deza (2012, 54)). So comparing it with figure (2b), of a ziggurat from above, provides another proof of the theorem.

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*Date:* May 21, 2020.

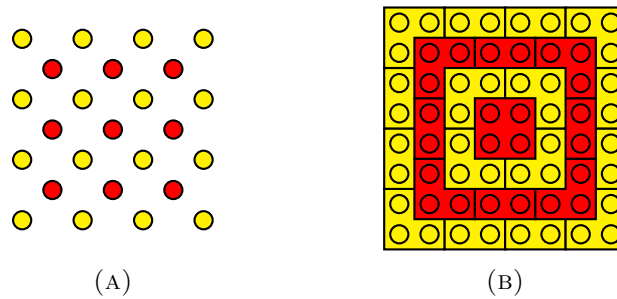


FIGURE 2

1

## REFERENCES

- Conway, J. H. and Guy, R. K. (1996). *The Book of Numbers*, Springer, New York.
- Deza, E. and Deza, M. (2012). *Figurate Numbers*, World Scientific, Singapore.

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<sup>1</sup>For comments on this paper, we thank an anonymous referee, Jeremiah Joaquin, Mike Pelczar, and Weng Hong Tang