

ZMATH 2016f.01192

Gilbertson, Nicholas J.

Integer solutions of binomial coefficients.

Math. Teach. (Reston) 109, No. 6, 472-475 (2016).

Summary: A good formula is like a good story, rich in description, powerful in communication, and eye-opening to readers. The formula presented in this article for determining the coefficients of the binomial expansion of $(x + y)^n$ is one such “good read.” The beauty of this formula is in its simplicity – both describing a quantitative situation concisely and applying it with straightforward calculations. Delving deeper, however, reveals countless interesting connections, patterns (e.g., Pascal’s triangle), and applications. What is particularly important about the two approaches presented here is that they are very different and yet they end up in the same place. Attending to what the situation represents (i.e., combinations) provides insights different from those that arise when we focus on the structure of the formula. Although the proof may be more complicated than many students can handle, the main ideas are still accessible. (ERIC)

Classification: K20 F60

Keywords: binomial coefficients; integer solutions

<http://www.nctm.org/Publications/Mathematics-Teacher/2016/Vol109/Issue6/Integer-Solutions-of-Binomial-Coefficients/>