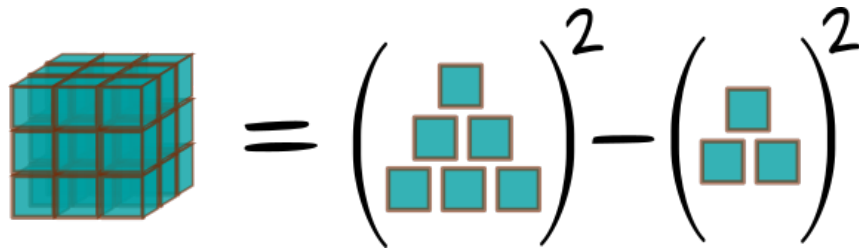


MATH CHALLENGE PROBLEM

for early November 2015

Cubes are Differences of Squares of Triangles?



The other day I noticed that the perfect cube 64 could be written as $100 - 36$. Of course 100 and 36 are both square numbers. In fact, $100 = 10^2$ and $36 = 6^2$, and 10 and 6 happen to be consecutive *triangular* numbers (the triangular numbers are 1, 3, 6, 10, 15, . . ., think bowling pins). Thinking this must be a coincidence, I checked another: 216 is a perfect cube, and is the difference of 441 and 225, both squares of triangular numbers 21 and 15. Huh!?

The Challenge: Is every perfect cube the difference of two perfect squares, each the square of two consecutive triangular numbers? Prove your answer.

Submit solutions to Ross 2239G or oscar.levin@unco.edu by **Monday, November 16**.

The best solution WIN A PRIZE!

Prizes include nifty Rubik's style puzzle cubes, math puzzle books, math games, even a math coloring book. So submit your answer TODAY!