

MAA Metro NY  
December 2024: Problem of the Month  
**Sums of squares all the way...**

Give explicit solutions for all positive integers  $n$  to the equation  $a^2+b^2+c^2 = 77^n$  in positive integers. We can easily check for  $n = 1$  that a possible solution is  $a = 4, b = 5, c = 6$  and when  $n = 2$ , a possible solution is  $a = 22, b = 33, c = 66$ .

Computer or AI assisted/generated solutions will not be accepted.