A² + B² = D²

A² + C² = E²

B² + C² = F²

A2 + B2 + C2 = G2

2(A2 + B2 + C2) = 2G2

A2 + A2 + B2 + B2 + C2 + C2 = 2G2

D2 + E2 + F2 = 2G2

None of the numbers can satisfy the equation

Cases:

1. D, E and F are odd squares then sum of three odd numbers are always odd so it is not divisible by 2
2. Any two are even then again, the sum is odd
3. One of them is odd then it can be written as 2y: D2 + (2y) 2 + E2 = 2G2, D2 + 4y 2 + E2. Since D and E are odd and sum of two odd numbers are even the equation will become 2z + 4y2 = 2G2, z + 2y2 = G, then 2y2 is not a perfect square.
4. If all are even then let D = 2x, E = 2y, F = 2z, D2 + E2 + F2 = 2G2 becomes (2x) 2 + (2y) 2 + (2z) 2 = 2G2; 4x2 + 4y2 + 4z2 = 2G2; 2x2 + 2y2 + 2z2 = G2; then 2x, 2y and 2z are not perfect squares.

So, no such equations can be formed