* Sum of squares of n numbers should be also a square :-

$n^2 = (n-2)^2 - 4 + 4n$

$n^2 = (n-2)^2 + 2^2(n-1)$

$(n)^2 = (n-2)^2 + (2)^2(n-1)$

it means for any number n its square will be equal to

$\underbrace{\underbrace{(n-1)}\text{ times } 2^2 + \underbrace{1} \times (n-2)^2}$

total are n number and their sum is a square

* if any number n is even then obviously $n-1$ is odd and it can be written as

$n-1 = 2u + 1 \quad \Rightarrow \quad u = \frac{n-2}{2}$

add u^2 to both sides

$u^2 + n - 1 = u^2 + 2u + 1$

$u^2 + n - 1 = (u+1)^2$

$u^2 + 1^2(n-1) = (u+1)^2$

if n is odd

$n-2$ also a odd number

and $n-2+4 \Rightarrow$ odd number

$n-2+4 = 2u+1 \quad \Rightarrow u = \frac{n+1}{2}$

$n-2+4+u^2 = u^2+2u+1$

$u^2 + (n-2) + 4 = (u+1)^2$

$u^2 + 1^2(n-2) + 2^2 = (u+1)^2$