Rearrange these statements to form a proof about triangular and square numbers.

Hence, $8k + 1 = 4n^2 + 4n + 1$
Suppose $8k + 1$ is a square number
Factorising the right hand side, $8k = 4n(n + 1)$
This is the general form for a triangular number. Therefore, if $8k + 1$ is square, k is triangular.
We wish to prove that if $8k + 1$ is a square number then k is a triangular number.
Simplifying, $k = \frac{1}{2}n(n + 1)$
All odd squares are of the form $(2n + 1)^2 = 4n^2 + 4n + 1$
Dividing both sides by 8, $k = \frac{4n(n+1)}{8}$
Subtracting 1 from both sides, $8k = 4n^2 + 4n$
Since $8k$ is even, $8k + 1$ is odd