

Can you prove that the sum of the first n odd numbers is n^2 using proof by induction?

Below is a proof that has been scrambled up. Can you cut up the statements and rearrange them into their original order?

<p>Now consider the case $n = k + 1$, the sum of the first $k + 1$ odd numbers is $1 + 3 + 5 + \dots + (2k - 1) + (2k + 1)$</p>	A
<p>... and since the result is true when $n = 1$, it is true for all integers $n \geq 1$</p>	B
<p>Assume that the proposition is true when $n = k$, so we assume that $1 + 3 + 5 + \dots + (2k - 1) = k^2$</p>	C
<p>Using the result for $n=k$ we have $1 + 3 + 5 + \dots + (2k - 1) + (2k + 1) = k^2 + (2k + 1) = (k + 1)^2$</p>	D
<p>We are trying to prove that the sum of the first n odd numbers is n^2</p>	E
<p>Therefore if the result is true when $n = k$ then it is also true when $n = k + 1$</p>	F
<p>Base case: When $n = 1$ we have $1 = 1^2$, and so the proposition is true when $n = 1$</p>	G