

### Hint for Problem 361

You've probably guessed that the sum is  $n^2$ . To prove this by contradiction, you have to assume it is false, that is, that there is an  $n$  such that  $1 + 3 + 5 + \cdots + 2n - 1 \neq n^2$ . Then the method of Problem 360 says there must be a smallest such  $n$  and suggests we call it  $k$ . Why do you know that  $1 + 3 + 5 + \cdots + 2k - 3 = (k - 1)^2$ ? What happens if you add  $2n - 1$  to both sides of the equation?