1 $(n) + (n+1) = 2n+1$ $2n$ is always even

$\therefore 2n+1$ is odd

2. $(n)(n+1)$ one of n OR $n+1$ will be even

$\therefore$ Product will be even

3. $(n) + (n+1) + (n+2) + (n+3) = 4n+6$

$= 4(n+1) + 2$

leaves a remainder of 2

4. $(2a+1) + (2b+1) = 2a + 2b + 2$

$= 2(a+b+1)$

always even

5. $7^2 = (6+1)^2$

$= 6^2 + 2(6) + 1$

$= 6^2 + 6 + (6+1)$

$= 6^2 + 6 + 7$

CLAIM:

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

$(n+1)^2 \quad ? \quad n^2 + n + n+1$

$n^2 + 2n + 1 \quad ? \quad n^2 + 2n + 1$

$n^2 + 2n + 1 = n^2 + 2n + 1$

6. $(2n+1)^2 = 4n^2 + 4n + 1$

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

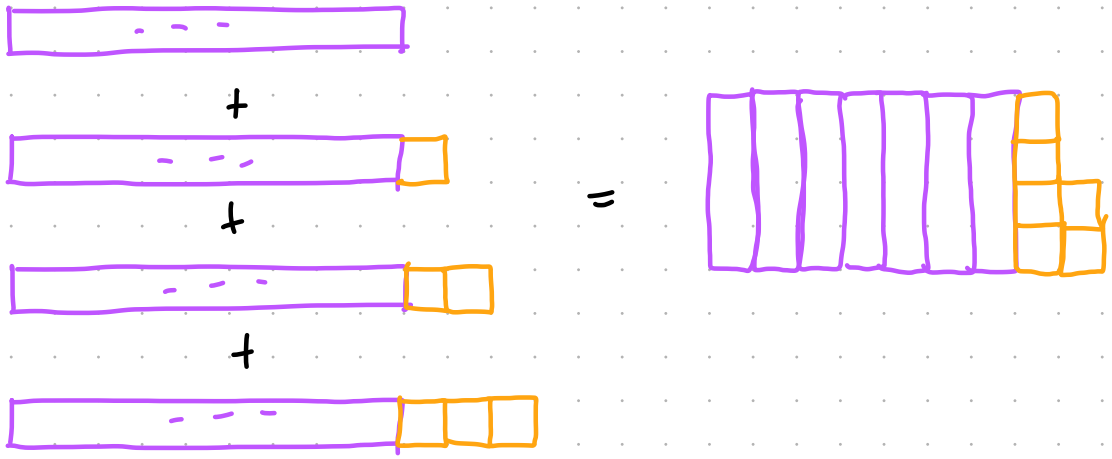
which is odd

7. $a^2 \times b^2 = (ab)^2$

also a square number

1.

3.



4.

5.