

$$\frac{1}{2}$$

$$n=k+1$$

$$(k+3) + (k+4) + \dots + (3k+2) + (3k+3) + (3k+4) + (3k+5) \stackrel{?}{=} 2(2k+3)(k+2)$$

$$2(2k+1)(k+1) - (k+2) + 9k+12 \stackrel{?}{=} 4k^2+14k+12$$

$$4k^2+6k+2+8k+10 = 4k^2+14k+12$$