(10 x 5 = 50 points)

18
(356)

$n=1$

$1^3 = 4-3$ ✓

$n=k$

$1^3 - 2^3 + \dots + (2k-1)^3 = 4k^3 - 3k^2$

$n=k+1$

$1^3 - 2^3 + \dots + (2k-1)^3 - (2k)^3 + (2k+1)^3 \overset{?}{=} 4(k+1)^3 - 3(k+1)^2$

$4k^3 - 3k^2 - (2k)^3 + (2k+1)^3 \overset{?}{=} 4(k^3+3k^2+3k+1) - 3(k^2+2k+1)$

$4k^3 - 3k^2 - 8k^3 + 8k^3 + 12k^2 + 6k + 1 \overset{?}{=} 4k^3 + 12k^2 + 12k + 4 - 3k^2 - 6k - 3$

$4k^3 + 9k^2 + 6k + 1 = 4k^3 + 9k^2 + 6k + 1$