

20  
(356)

$$n=2$$

$$1^2 - 3^2 = -2 \cdot 2^2 \quad \checkmark$$

$$n_{\text{pairs}} = k$$

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

$$n_{\text{pairs}} = k+2$$

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

$$-2k^2 + 4k + 4k + 1 - 4k - 12k - 9 =$$

$$-2k^2 - 8k - 8 = -2(k+2)^2$$