

LISTA 3
PRINCÍPIO DE INDUÇÃO FINITA

★1. $2 + 6 + 10 + \dots + (4n - 2) = 2n^2$

2. $2 + 4 + 6 + \dots + 2n = n(n+1)$

★3. $1 + 5 + 9 + \dots + (4n - 3) = n(2n - 1)$

4. $1 + 3 + 6 + \dots + \frac{n(n+1)}{2} = \frac{n(n+1)(n+2)}{6}$

★5. $4 + 10 + 16 + \dots + (6n - 2) = n(3n + 1)$

6. $5 + 10 + 15 + \dots + 5n = \frac{5n(n+1)}{2}$

7. $1^2 + 2^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$

8. $1^3 + 2^3 + \dots + n^3 = \frac{n^2(n+1)^2}{4}$

★9. $1^2 + 3^2 + \dots + (2n - 1)^2 = \frac{n(2n-1)(2n+1)}{3}$

11. $1 \cdot 3 + 2 \cdot 4 + 3 \cdot 5 + \dots + n(n+2) = \frac{n(n+1)(2n+7)}{6}$

★13. $\frac{1}{1 \cdot 2} + \frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \dots + \frac{1}{n(n+1)} = \frac{n}{n+1}$

14. $\frac{1}{1 \cdot 3} + \frac{1}{3 \cdot 5} + \frac{1}{5 \cdot 7} + \dots + \frac{1}{(2n-1)(2n+1)} = \frac{n}{2n+1}$