

Table[n^2, {n, 1, 10}]

{1, 4, 9, 16, 25, 36, 49, 64, 81, 100}

Sum[n^2, {n, 1, 10}]

385

Table[**Sum**[n^2, {n, 1, k}], {k, 1, 10}]

{1, 5, 14, 30, 55, 91, 140, 204, 285, 385}

Table[(1/6) (n (n+1) (2n+1)), {n, 1, 10}]

{1, 5, 14, 30, 55, 91, 140, 204, 285, 385}

Spencer[n_] := 1 + (1/2) (1/6) ((n-1) (n) (2(n-1) + 1)) + (1/2) (1/2) (n (n-1)) + n

Spencer[5]

26

Table[**Spencer**[x], {x, 0, 10}]

{1, 2, 4, 8, 15, 26, 42, 64, 93, 130, 176}

Marvelia[n_] := 1 + (1/6) (n (n-1) / 2)^2 + (5/6) (n (n-1) / 2) + n

Table[**Marvelia**[x], {x, 0, 10}]

{1, 2, 4, 8, 16, 31, 57, 99, 163, 256, 386}

Expand[1 + (1/6) (n (n-1) / 2)^2 + (5/6) (n (n-1) / 2) + n]

$$1 + \frac{7n}{12} + \frac{11n^2}{24} - \frac{n^3}{12} + \frac{n^4}{24}$$