

# **Bestiario de Teoría de Números**

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2023-10-15

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## 2 SERIES CONVERGENTES

En esta parte del libro <https://archive.siam.org/journals/problems/downloadfiles/07-003s.pdf>

### 2.1 Series que incluyen las funciones de parte entera.

Tabla 2.1: Fracciones enteras de  $n^2$

k	Secuencia	Fórmula	Descripción	Términos
1	A000290	$\left\lfloor \frac{n^2}{1} \right\rfloor$	The squares: $a(n) = n^2$ .	$\{1, 4, 9, 16, 25, 36, 49, 64, 81, 100, \dots\}$
2	A007590	$\left\lfloor \frac{n^2}{2} \right\rfloor$	$a(n) = \text{floor}(n^2/2)$ .	$\{0, 2, 4, 8, 12, 18, 24, 32, 40, 50, \dots\}$
3	A000212	$\left\lfloor \frac{n^2}{3} \right\rfloor$	$a(n) = \text{floor}(n^2/3)$ .	$\{0, 1, 3, 5, 8, 12, 16, 21, 27, 33, \dots\}$
4	A002620	$\left\lfloor \frac{n^2}{4} \right\rfloor$	Quarter-squares: $a(n) = \text{floor}(n/2) * \text{ceiling}(n/2)$ . Equivalently, $a(n) = \text{floor}(n^2/4)$ .	$\{0, 1, 2, 4, 6, 9, 12, 16, 20, 25, \dots\}$
5	A118015	$\left\lfloor \frac{n^2}{5} \right\rfloor$	$a(n) = \text{floor}(n^2/5)$ .	$\{0, 0, 1, 3, 5, 7, 9, 12, 16, 20, \dots\}$
6	A056827	$\left\lfloor \frac{n^2}{6} \right\rfloor$	$a(n) = \text{floor}(n^2/6)$ .	$\{0, 0, 1, 2, 4, 6, 8, 10, 13, 16, \dots\}$
7	A056834	$\left\lfloor \frac{n^2}{7} \right\rfloor$	$a(n) = \text{floor}(n^2/7)$ .	$\{0, 0, 1, 2, 3, 5, 7, 9, 11, 14, \dots\}$
8	A130519	$\left\lfloor \frac{n^2}{8} \right\rfloor$	$a(n) = \text{Sum}_{k=0..n} \text{floor}(k/4)$ . (Partial sums of A002265.)	$\{0, 0, 1, 2, 3, 4, 6, 8, 10, 12, \dots\}$
9	A056838	$\left\lfloor \frac{n^2}{9} \right\rfloor$	$a(n) = \text{floor}(n^2/9)$ .	$\{0, 0, 1, 1, 2, 4, 5, 7, 9, 11, \dots\}$
10	A056865	$\left\lfloor \frac{n^2}{10} \right\rfloor$	$a(n) = \text{floor}(n^2/10)$ .	$\{0, 0, 0, 1, 2, 3, 4, 6, 8, 10, \dots\}$

#### 2.1.1 Función techo de $n^2$ medios, A000982

$$A000982 = \{0, 1, 2, 5, 8, 13, 18, 25, 32, 41, 50, 61, 72, 85, 98, 113, 128, \dots\} \quad (2.1)$$

$$A000982(n) = \left\lceil \frac{n^2}{2} \right\rceil \quad (2.2)$$

- **Problema** - Sumar la serie: