

Let $p(n)$ denote the number of partitions of n .

Example

n	partitions of n	$p(n)$
1	1	1
2	2, 1+1	2
3	3, 2+1, 1+1+1	3
4	4, 3+1, 2+2, 2+1+1, 1+1+1+1	5
5	5, 4+1, 3+2, 3+1+1, 2+2+1, 2+1+1+1, 1+1+1+1+1	7
6	6, 5+1, ..., 1+1+1+1+1+1	11
7	7, 6+1, ..., 1+1+1+1+1+1+1	15
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$$p(n) \sim \frac{1}{4n\sqrt{3}} e^{\pi\sqrt{2n/3}}$$

Hardy & Ramanujan
(1918)

as $n \rightarrow \infty$.

Note We say $f(n) \sim g(n)$ as $n \rightarrow \infty$ if

$$\lim_{n \rightarrow \infty} \frac{f(n)}{g(n)} = 1.$$