The results

n	$T(n)$	$\frac{1}{3}n^3$	% of error
1	1	0	100.0
2	5	2	60.0
3	14	9	35.7
4	30	21	30.0
5	55	41	25.4
6	91	72	20.8
7	140	114	18.5
8	204	170	16.6
9	285	243	14.7

O-Notation

- O-notation expresses the upper bound for function values.

  For a given function $f(n)$, O($f(n)$) denotes a set of functions

$$\begin{aligned} O(f(n)) \;=\; & \{T(n) | \exists c > 0 \textit{ and } n_0 > 0 \\ & \textit{such that } 0 \leq T(n) \leq c.f(n) \\ & \textit{for all } n > n_0\} \end{aligned}$$

- Any function $T(n) \in O(f(n))$ can not exceed value of $f(n)$ when n is sufficiently large, for $n \geq n_0$.
- Definition indicates O($f(n)$) represent a set of function, for convenience we continuously abuse the notation to write $T(n) = O(f(n))$ which means that $T(n)$ belongs to $O(f(n))$.

Big-Oh : graphical meaning