

Personal Github: <https://github.com/amitsachdeva45/SEPPersonal>

Team Github: <https://github.com/amitsachdeva45/SEPCalculatorTeamI>

Function 5: Gamma Function

Definition:

It acts like a factorial operation from positive integers to real and even complex values of the argument. It was introduced by Euler

This function is divided into 2 parts:

1. For Integer value
2. For Real Value

$\Gamma(a)$ = infinity for all negative integers I - as well as 0

$\Gamma(a) = \int_0^{\infty} t^{(a-1)} \cdot \exp(-t) dt$, $\text{Re}(a) > 0$

In general:

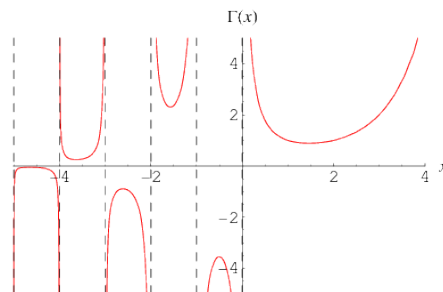
- 1) $\Gamma(a+1) = a\Gamma(a)$
- 2) $\Gamma(a) = \int_0^{\infty} t^{(a-1)} \exp(-t) dt$, $\text{Re}(a) > 0$
- 3) $\Gamma(1/2) = \sqrt{\pi}$ $\Gamma(a)\Gamma(1-a) = \pi / \sin(\pi a)$

Domain: Gamma function is defined for all Real Numbers excluding negative integers and 0.

Codomain: It ranges from -infinity to infinity

More about this function:

- 1) It is not periodic



Graphical Representation of gamma function: