#### GAMMADIST

[Syntax](Syntax.docx):

GAMMADIST ( x , alpha , beta , cumulative-flag )

Description: Computes the gamma distribution.

Mathematical Formula:

The equation for the gamma probability density function is:



The standard gamma probability density function is:



When alpha = 1, GAMMADIST returns the exponential distribution with:



For a positive integer n, when alpha = [n](n.docx)/2, beta = 2, and cumulative = [TRUE](TRUE.docx), GAMMADIST returns (1-CHIDIST(x)) with n degrees of freedom.

When alpha is a positive integer, GAMMADIST is also known as the Erlang distribution.

Arguments:

|  |  |  |
| --- | --- | --- |
| Name | Type | Description |
| [x](x.docx) | number | The value at which the distribution is to be evaluated. |
| alpha | number | A [parameter](parameter.docx) of the distribution. |
| beta | number | A [parameter](parameter.docx) of the distribution. If beta = 1, GAMMADIST returns the standard gamma distribution. |
| cumulative-flag | logical | Determines the form of the function. If [TRUE](TRUE.docx), GAMMADIST returns the cumulative distribution function; if [FALSE](FALSE.docx), it returns the probability density function. |

Return Type and Value: number – The gamma distribution.

However, if

* x < 0, #NUM! is returned.
* alpha ≤ 0 or beta ≤ 0, #NUM! is returned.

[Example:

GAMMADIST(10,9,2,FALSE) results in 0.03263902
GAMMADIST(10,9,2,TRUE) results in 0.068093631

end example]