



**PES**  
UNIVERSITY

# ENGINEERING MATHEMATICS-I MATLAB

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Department of Science and Humanities

## Evaluation of Gamma function

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1.  $\text{gamma}(0.5)$

ans = 1.7725

2.  $\text{gamma}(1)$

ans = 1

3.  $\text{gamma}(3/2)$

ans = 0.8862

4.  $\text{gamma}(7/2)$

ans = 3.3234

5.  $\text{gamma}(1/4) * \text{gamma}(3/4)$

ans = 4.4429

## Evaluation of Gamma function

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6. Evaluate several values of the gamma function between [-3.5, 3.5].

x = -3.5:3.5;

y = gamma(x)

Output:

y = 1×8

0.2701 -0.9453 2.3633 -3.5449 1.7725 0.8862 1.3293 3.3234

## Evaluation of Gamma function

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### Geometrical Representation of Gamma function

```
fplot(@gamma)
```

```
hold on
```

```
fplot(@(x)1./gamma(x))
```

```
ylim([-10 10])
```

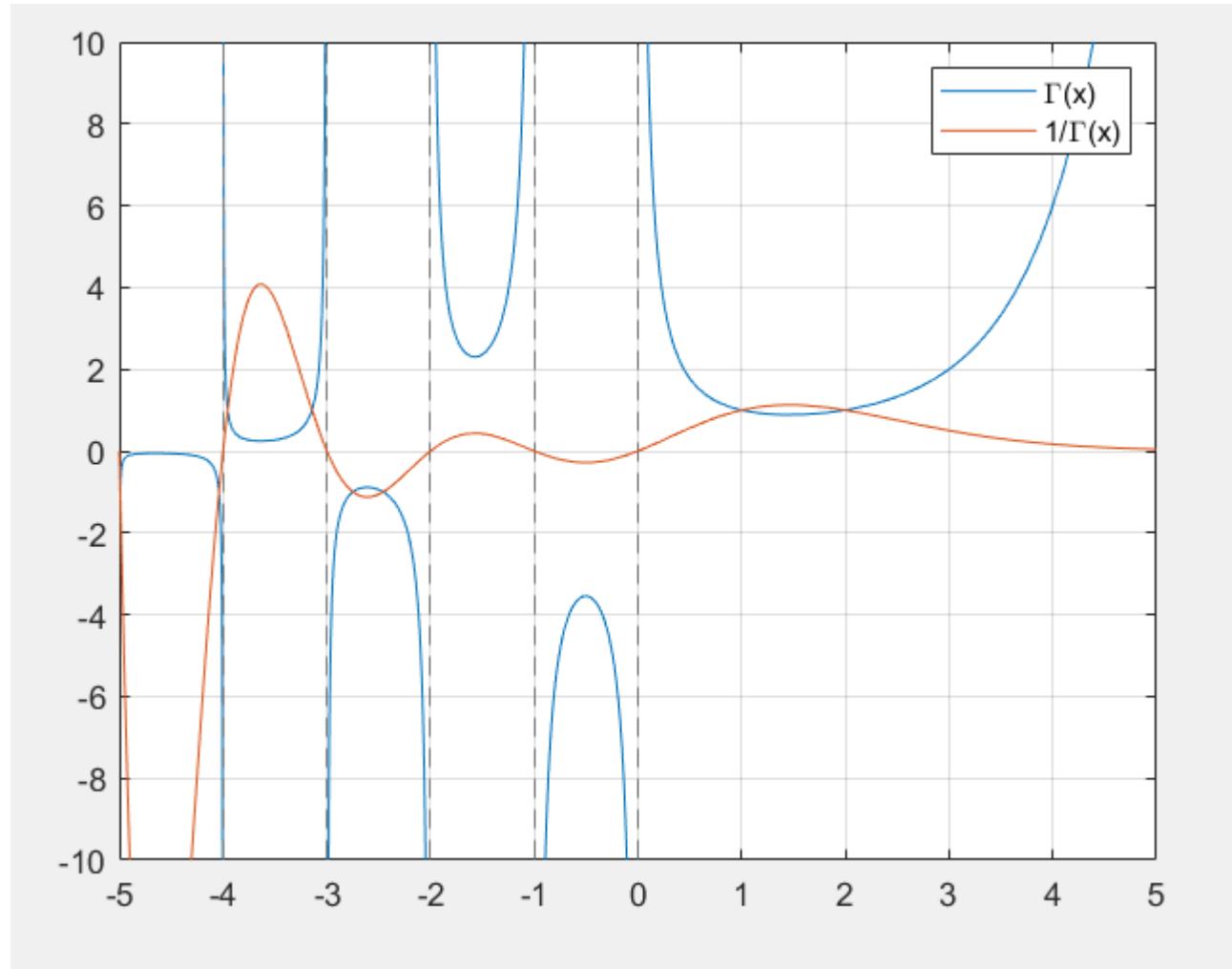
```
legend('Gamma(x)', '1/Gamma(x)')
```

```
hold off
```

```
grid on
```

# Gamma function

Geometrical representation of Gamma function:



## Evaluation of Beta function

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1.  $\text{beta}(2,3)$

ans = 0.0833

2.  $\text{beta}(2,5)$

ans = 0.0333

3.  $\text{beta}(0,1)$

ans = Inf

4.  $\text{beta}(3,4)$

ans=0.0167

## Examples

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Evaluate by using matlab code.



```
p=10;  
result=(gamma((p+1)/2)*gamma(1/2))/(2*gamma((p+2)/2));  
disp(result)
```

Output  
0.3866

## Examples

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Evaluate by using matlab code



```
m = 7;  
n = 8;  
result = (gamma(m/2) * gamma(n/2)) / (2 * gamma(m/2 + n/2))  
disp(result)
```

Output  
0.0053

## Examples

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Evaluate by using matlab code

```
p= 1/2;  
q = 1/2;  
result = (1/3) * (gamma(p) * gamma(q)) / gamma(p + q)
```

Output  
1.0472



THANK YOU

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