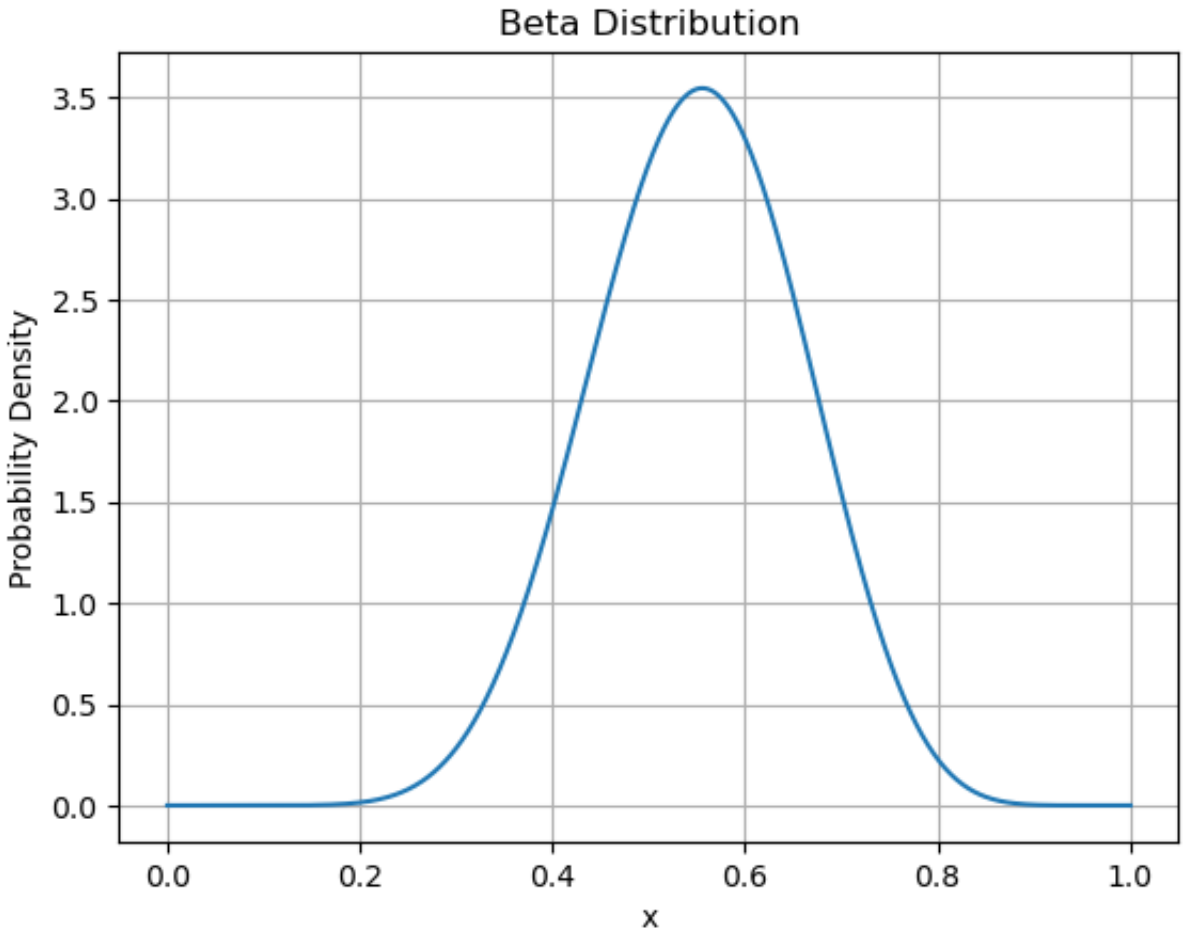
a)

In [20]:
```
alpha = 11
beta_ = 9
```

In [23]:
```
x = np.linspace(0, 1, 1000)
pdf = beta.pdf(x, alpha, beta_)
```

In [24]:
```
plt.plot(x, pdf)
plt.title('Beta Distribution')
plt.xlabel('x')
plt.ylabel('Probability Density')
plt.grid(True)
```




b)

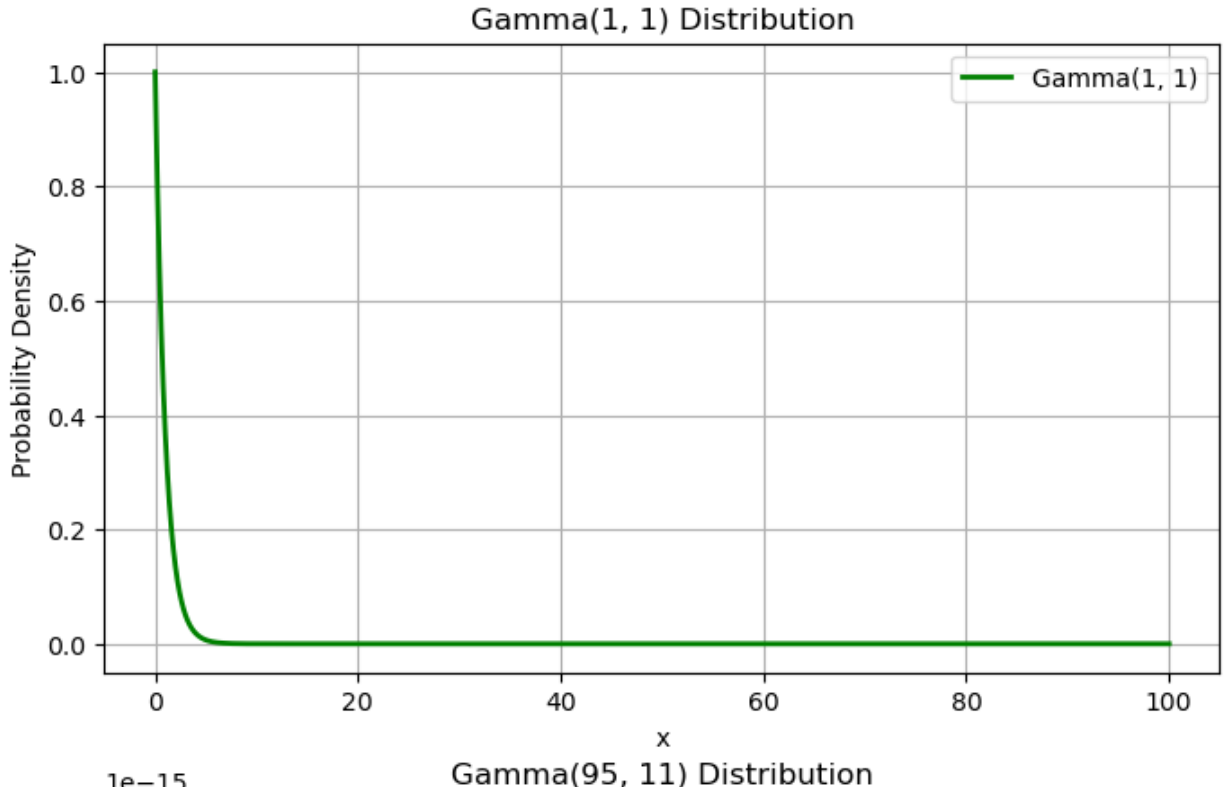
In [27]:
```
param_prior1 = 1
param_prior2 = 1
param_post1 = 95
param_post2 = 11
```

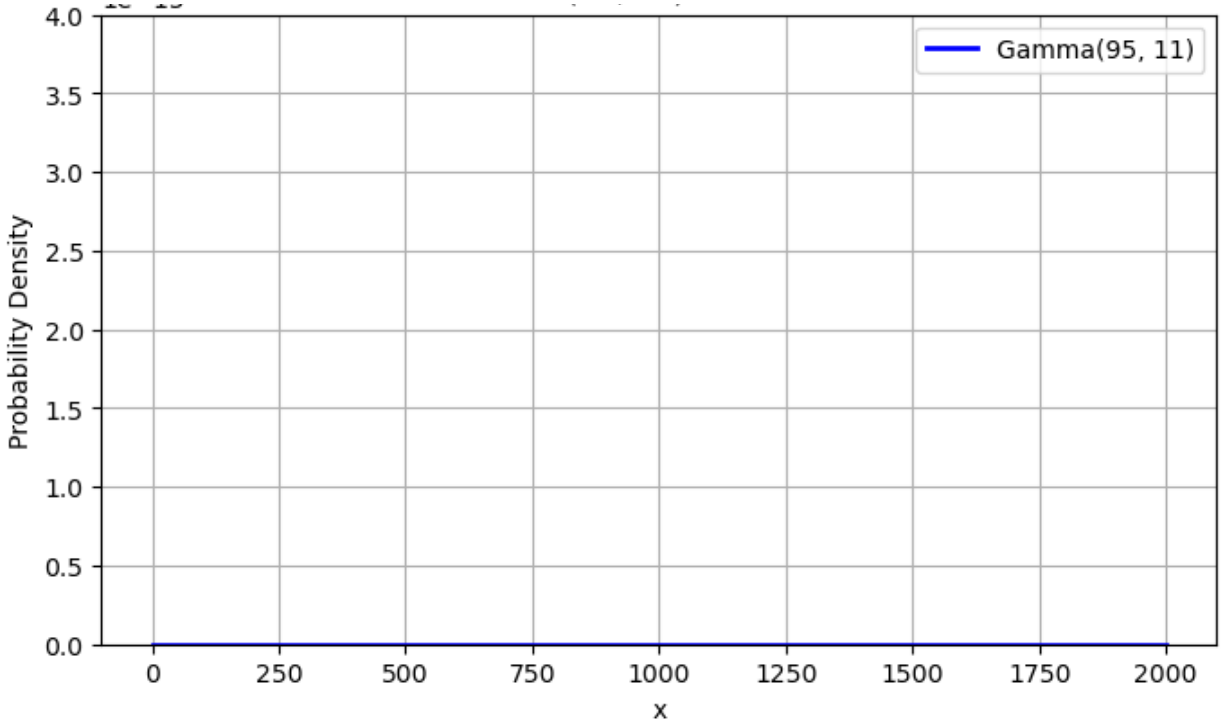
In [62]:
```
x = np.linspace(0, 100, 1000)
x2 = np.linspace(0, 2000, 1000)
pdf1 = gamma.pdf(x, param_prior1 , scale =param_prior2)
pdf2 = gamma.pdf(x, param_post1, scale = param_post2)
```

In [63]:
```
fig, axes = plt.subplots(2, 1, figsize=(8, 10))

axes[0].plot(x, pdf1, 'g-', lw=2, label='Gamma(1, 1)')
axes[0].set_title('Gamma(1, 1) Distribution')
axes[0].set_xlabel('x')
axes[0].set_ylabel('Probability Density')
axes[0].legend()
axes[0].grid(True)

axes[1].plot(x2, pdf2, 'b-', lw=2, label='Gamma(95, 11)')
axes[1].set_ylim(0, 4e-15)
axes[1].set_title('Gamma(95, 11) Distribution')
axes[1].set_xlabel('x')
axes[1].set_ylabel('Probability Density')
axes[1].legend()
axes[1].grid(True)
```




Gamma(95, 11)
Probability Density
x
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
0
250
500
750
1000
1250
1500
1750
2000

In [ ]: