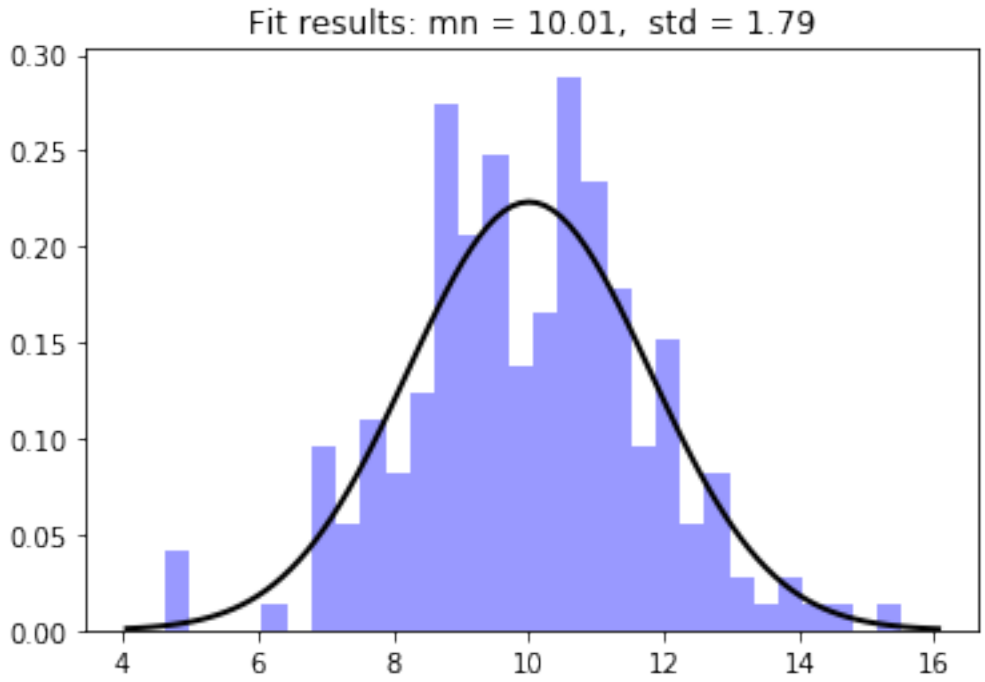
In [1]:

```
import numpy as np
import matplotlib.pyplot as plt
from scipy.stats import norm
from scipy.stats import skew
#Performing for Normal Fit
ds = norm.rvs(10.0, 2 , size=200)
mn, std = norm.fit(ds)
plt.hist(ds, bins=30, normed=True, alpha=0.4, color='b')
min, max = plt.xlim()
x = np.linspace(min, max, 100)
p = norm.pdf(x, mn, std)
plt.plot(x, p, 'k', linewidth=2)
result = "Fit results: mn = %.2f,  std = %.2f" % (mn, std)
plt.title(result)
plt.show()
```



In [2]:

```
#Skewness for Normal Fit
skew(ds)
```

Out[2]:

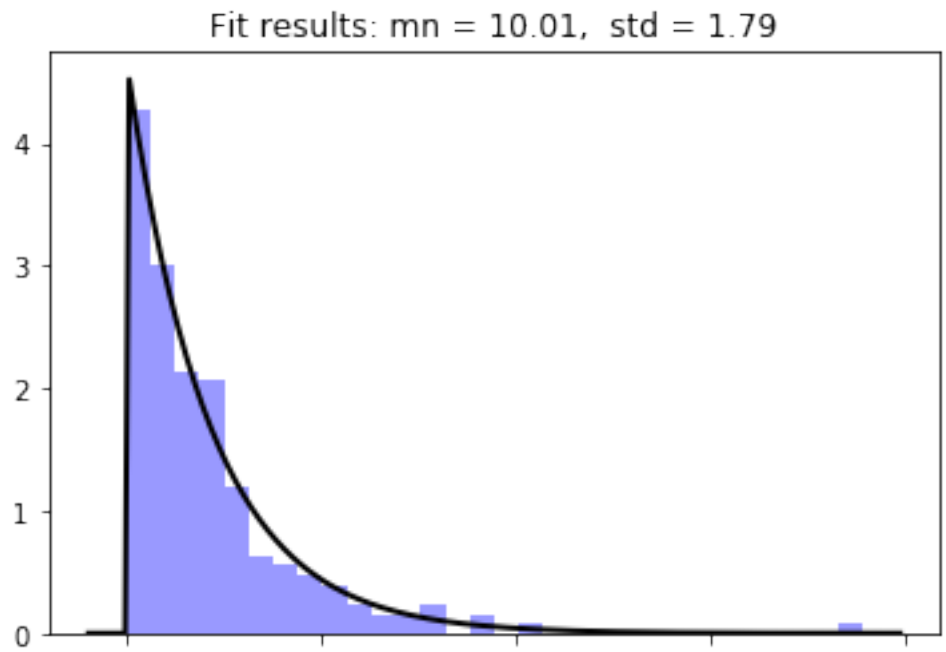
```
-0.004374441794376228
```

In [3]:

```
#The skewness for Normal Fit is Negative Skewed i.e. left skewed.
```

In [5]:

```
# Performing for Exponential Fit
from scipy.stats import expon
expfit= np.random.exponential(scale=0.2, size= 200)
loc, scale = expon.fit(expfit)
plt.hist(expfit, bins=30, normed=True, alpha=0.4, color='b')
min, max = plt.xlim()
x = np.linspace(min,max,200)
p= expon.pdf(x, loc, scale)
plt.plot(x,p,'k',linewidth= 2)
plt.title(result)
plt.show()
```



In [6]:

```
skew(expfit)
```

Out[6]:

2.8831993784691248

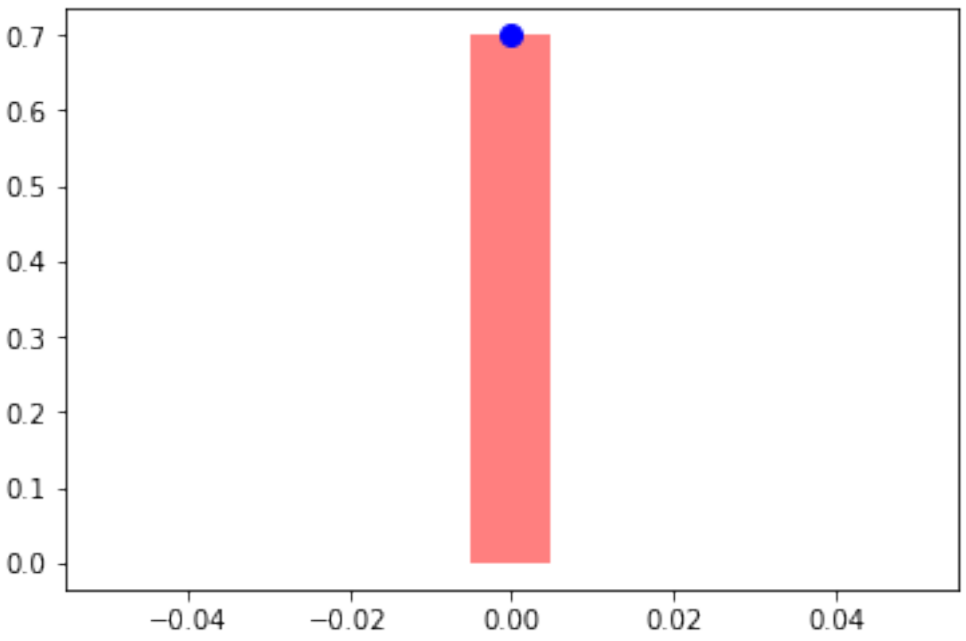
In [7]:

```
#The skewness for Exponential Fit is Positive skewed i.e right skewed.
```

In [9]:

```
#Performing for Bernoulli Fit

from scipy.stats import bernoulli
import matplotlib.pyplot as plt
fig, ax = plt.subplots(1, 1)
p = 0.3
mean, var, skew, kurt = bernoulli.stats(p, moments='mvsk')
x = np.arange(bernoulli.ppf(0.01, p),bernoulli.ppf(0.99, p))
ax.plot(x, bernoulli.pmf(x, p), 'bo', ms=8, label='bernoulli pmf')
ax.vlines(x, 0, bernoulli.pmf(x, p), colors='red', lw=30, alpha=0.5)
r = bernoulli.rvs(p, size=200)
plt.show()
```



In [10]:

```
#Q.2 The fit varies as a function of the true parameter because there is non-uni
formity between the real data curve
#and the predicted curve and also there are many values that lie outside ofnthe
curve, which indicates error
#in the predicted curve.
```

In [ ]:

```
#Q.3 To make the decisions more accurate we are performing different types of th
e probability distribution.
#This helps in real world in making better business decisions.
```