In [48]:
```
import pandas as pd
import numpy as np
import math
import matplotlib.pyplot as plt
import seaborn as sns
from scipy.stats import norm
```

2.1 Annual Salaries US v UK

In [2]:
```
df_us = pd.read_clipboard()
```

In [4]:
```
df_us
```

Out[4]:

	US Base Salary	US Annual Bonus	US Option Gains
0	1.02	2.40	59.95
1	1.40	1.90	26.67
2	1.00	0.00	2.63
3	1.28	1.19	22.33
4	1.03	8.50	4.70
5	1.25	1.50	106.48
6	0.76	5.00	107.22
7	2.80	7.20	261.54
8	1.33	1.30	66.84
9	1.10	1.45	101.60

In [5]:
```
df_uk = pd.read_clipboard()
```

In [6]:
```
df_uk
```

Out[6]:

	UK Base Salary	UK Annual Bonus	UK Option Gains
0	0.60	0.11	0.99
1	1.43	0.79	0.02
2	0.80	0.28	0.35
3	0.91	0.52	0.04
4	1.11	0.59	4.19
5	1.50	1.45	0.87
6	0.70	0.16	0.00
7	0.76	0.32	2.58
8	1.30	1.72	119.51
9	0.94	0.00	6.07

In [7]:
```
df_us.describe()
```

Out[7]:

	US Base Salary	US Annual Bonus	US Option Gains
count	10.000000	10.000000	10.000000
mean	1.297000	3.044000	75.996000
std	0.561408	2.853054	76.816117
min	0.760000	0.000000	2.630000
25%	1.022500	1.337500	23.415000
50%	1.175000	1.700000	63.395000
75%	1.317500	4.350000	105.260000
max	2.800000	8.500000	261.540000

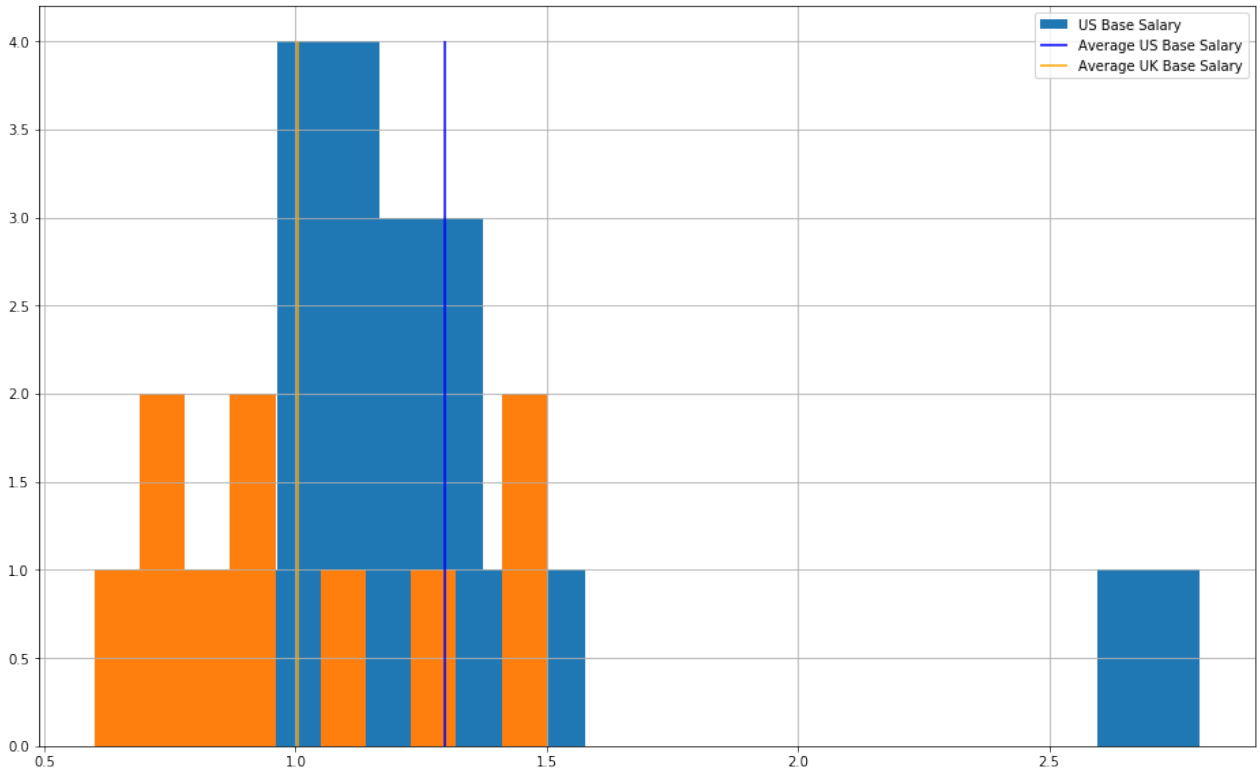
In [8]:
```
df_uk.describe()
```

Out[8]:

	UK Base Salary	UK Annual Bonus	UK Option Gains
count	10.000000	10.000000	10.000000
mean	1.005000	0.594000	13.462000
std	0.315533	0.576738	37.317414
min	0.600000	0.000000	0.000000
25%	0.770000	0.190000	0.117500
50%	0.925000	0.420000	0.930000
75%	1.252500	0.740000	3.787500
max	1.500000	1.720000	119.510000

In [25]:
```
plt.figure(figsize=(16, 10))
df_us["US Base Salary"].hist(label="US Base Salary")
df_uk["UK Base Salary"].hist()
plt.vlines(df_us["US Base Salary"].mean(), 0, 4, label="Average US Base
plt.vlines(df_uk["UK Base Salary"].mean(), 0, 4, label="Average UK Base
plt.legend()
```

Out[25]: `<matplotlib.legend.Legend at 0x1a282c5cc0>`



In [26]:
```
df_us.median()
```

Out[26]:
```
US Base Salary      1.175
US Annual Bonus     1.700
US Option Gains    63.395
dtype: float64
```

In [27]:
```
df_uk.median()
```

Out[27]:
```
UK Base Salary     0.925
UK Annual Bonus    0.420
UK Option Gains    0.930
dtype: float64
```

In [32]:
```
us_total_comp = df_us.apply(lambda x: sum(x), axis=1)
```

In [33]:
```
us_total_comp
```

Out[33]:
```
0     63.37
1     29.97
2      3.63
3     24.80
4     14.23
5    109.23
6    112.98
7    271.54
8     69.47
9    104.15
dtype: float64
```

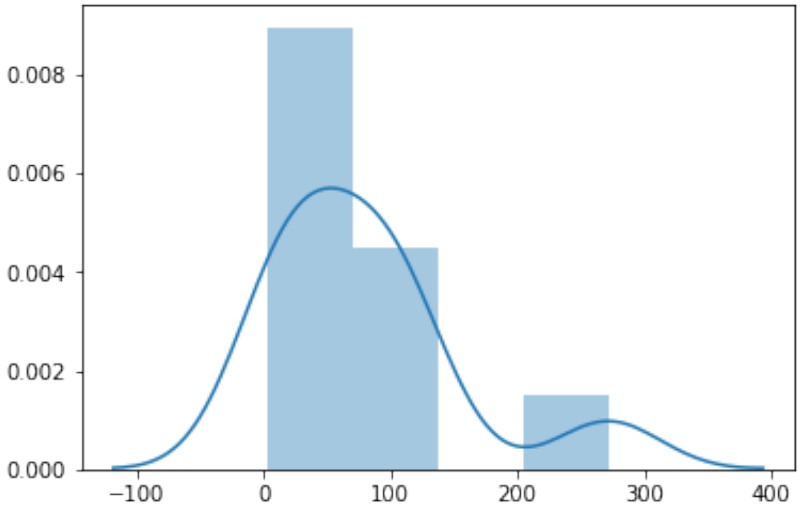
In [34]:
```
uk_total_comp = df_uk.apply(lambda x: sum(x), axis=1)
```

In [35]:
```
uk_total_comp
```

Out[35]:
```
0      1.70
1      2.24
2      1.43
3      1.47
4      5.89
5      3.82
6      0.86
7      3.66
8    122.53
9      7.01
dtype: float64
```

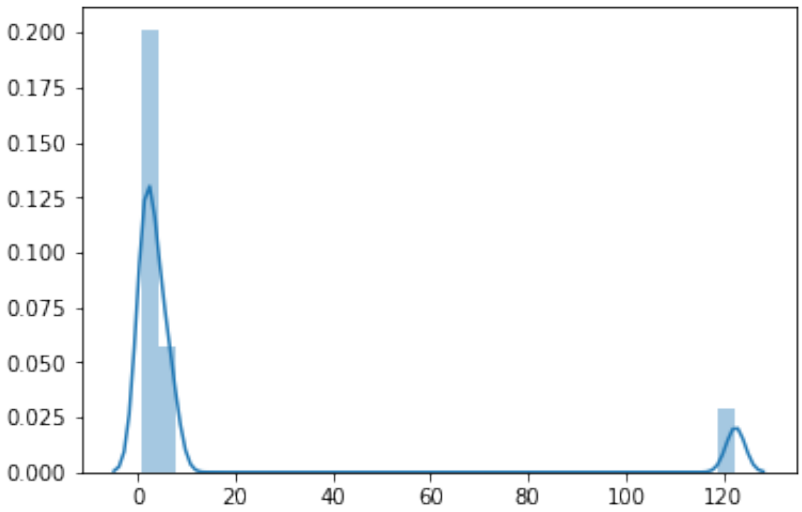
In [39]:
```
sns.distplot(us_total_comp)
```

Out[39]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x1a27d56860>
```



In [40]:
```
sns.distplot(uk_total_comp)
```

Out[40]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x1a28e8aac8>
```



In [44]:
```
us_total_comp.median(), us_total_comp.mean(), us_total_comp.var(), us_to
```

Out[44]:
```
(66.42, 80.337, 6145.253356666668, 78.39166637255946)
```

In [46]:
```
uk_total_comp.median(), uk_total_comp.mean(), uk_total_comp.var(), uk_to
```

Out[46]:
```
(2.95, 15.060999999999998, 1429.9929877777781, 37.81524808563046)
```

2.2 INSEAD weight sample

In [47]:
```
mu = 73.69
sd = 11.46
```

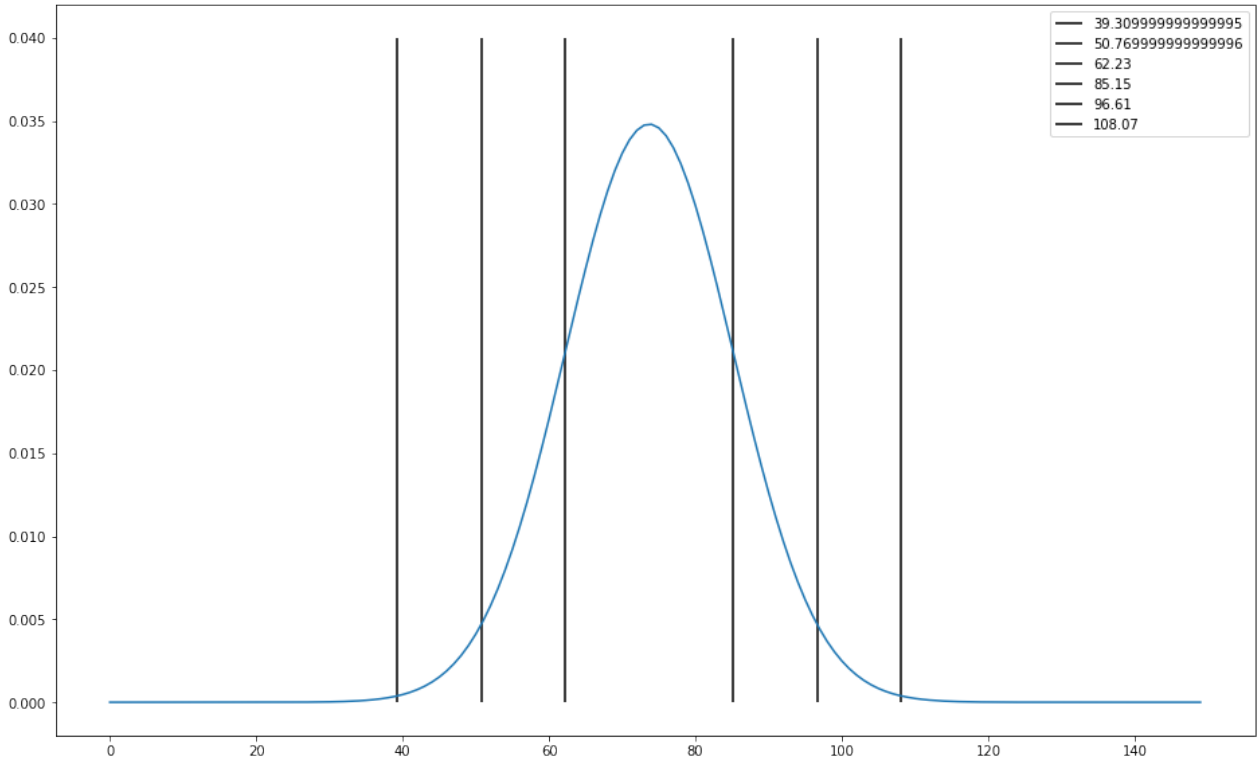
In [50]:
```
inseadnorm = norm(mu, sd)
```

In [51]:
```
x = np.arange(0, 150)
```

In [56]:
```
xsub1, x1 = mu-sd, mu+sd
xsub2, x2 = mu-2*sd, mu+2*sd
xsub3, x3 = mu-3*sd, mu+3*sd
```

In [60]:
```
plt.figure(figsize=(16,10))
plt.plot(x, inseadnorm.pdf(x))
plt.vlines(xsub3, 0,0.04, label=xsub3)
plt.vlines(xsub2, 0,0.04, label=xsub2)
plt.vlines(xsub1, 0,0.04, label=xsub1)
plt.vlines(x1, 0,0.04, label=x1)
plt.vlines(x2, 0,0.04, label=x2)
plt.vlines(x3, 0,0.04, label=x3)
plt.legend()
```

Out[60]:
```
<matplotlib.legend.Legend at 0x1a2904a748>
```



2.3 Average INSEAD Salary

In [61]:
```
salary_mu = 160000
salary_sd = 20000
```

In [62]:
```
print(f"Approximately 95% of the salaries were between EUR {salary_mu-2*
```

```
approximately 95% of the salaries were between EUR 120000 and EUR 2000
00.
```

In [ ]:
```

```