Question 9

```
from statsmodels.stats.power import TTestIndPower
analysis = TTestIndPower()



effect_size = 2
alpha = 0.05
power = 0.9

sample_size = analysis.solve_power(effect_size=effect_size, nobs1=None, alpha=alpha, power=power, ratio=1.0, alternative='two-sided')

display(md('#### Answer: Necessary Sample Size = {:d}'.format(int(sample_size*2))))

n1 = 5
effect_size = 2
alpha = 0.05
power = analysis.power(effect_size=effect_size, nobs1=10, alpha=alpha, ratio=1)
display(md('#### Answer: Power = {:.4f}'.format(power)))
```

Answer: Necessary Sample Size = 12

Answer: Power = 0.9882

Assuming, alpha = 0.05
For the first question, given the difference of 2 and the power of 0.9 we need 12 observations for power of 90%

If we can only run 10 samples then we need a power of 98.82%