GBS 221 Name _____
Trollen

Chapter 7 Worksheet 2

1) What is the sampling distribution of the mean?

2) What does the standard error of the mean, $\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}\sqrt{\frac{N-n}{N-1}}$, measure?

3) Evaluate the finite population correction factor $\sqrt{\frac{N-n}{N-1}}$ for each of the following. Show all work and calculate to 4 decimal digits.

N	**n**	**FPCF** $\sqrt{\frac{N-n}{N-1}}$
1000	1	
1000	5	
1000	100	
1000	500	
1000	1000	

4) When can the finite population correction factor be waived (ignored)?

5) When does the sampling distribution of the mean resemble a Normal (z) distribution? Be specific.

6) Suppose a population is Normally distributed with $\mu=100$, $\sigma=10$, N=500.

a) Describe the possible values for the sample mean ($\bar{x}$) when n=16.

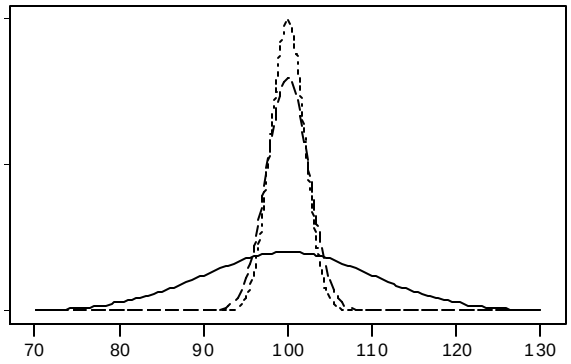
b) Describe the possible values for the sample mean ($\bar{x}$) when n=25.

c) Refer to the plot. Identify which distribution is which.

i) Normally distributed population $\mu=100$, $\sigma=10$.

ii) SDOM when n=16.

iii) SDOM when n=25.



d) If many people each take a sample of n=25 from this population, what proportion of them will have a sample mean between 98 and 102?

e) When n=25, inside what interval will the *middle 90%* of sample means be?

f) What's the probability your sample is so biased that the sample's mean exceeds 103?

g) What is the probability an *individual* item exceeds 103?