Stats Support 3: Lectures 3 and 4
Practice questions

will be taken up in Stats Support on Wed, Jan. 30th and Fri, Feb. 1st – remember you do not need to complete the questions to attend this portion of stats support

From last week: We created a 'happiness scale' out of various attitude and emotion questions on a survey administered to 560 auto workers in a large auto-factory in Ontario. The scale ranges from 0 - 50 (50 would be perfect happiness) and had a mean of 32.67 and a standard deviation of 5.7.

1. Last week you were asked to use the above to estimate the % of workers estimated to score above 40 and below 20. Below we continue with the same example and type of question, but with some slightly more complex examples and some new wording.

a. What percentage of workers would be expected to score above 25?
b. What is the chance of randomly choosing someone who scored between 30 and 40?
c. What about randomly choosing someone between 35 and 40?
d. Would someone who scored a 45 be in the top 10% of cases?

**Remember we need to provide specific parts of the problem solving process on written assignments and on exams when we create estimates like those above – not just an answer*.

2. When we survey all 10000 workers at the large auto-factory in the example above, we end up with a mean of 28.3 and a standard deviation of 4.2.

a. Calculate the standard error for this population of workers.
b. Draw the sample distribution, the population distribution and the sampling distribution of happiness among auto workers in this factory – include the mean of the distribution and 3 standard deviations on either side of the mean. Try to use the appropriate notation as well as the correct numbers if you are able.

3. 38% of the workers in the sample above were women, while 36% in the population were women.

a. Draw a sample distribution, population distribution and a sampling distribution of this information. Note you may not have yet been taught to calculate the standard error of proportions, so when drawing this distribution, simply fill in the notation where you don't yet have numbers.

*Note next week questions will cover more on the standard error, including substituting the sample standard deviation in the equation (most common scenario IRL). The rest of the questions will cover 'confidence intervals' – the first method we learn using the standard error.