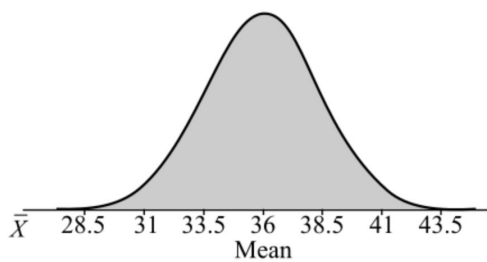Homework #4:

67.
    a. True, they're approx. equal when the sample size is large.
    b. True, according to the central limit theorem, larger sample sizes make more normally distributed means.
    c. True, as sample size increases, the standard deviation of X will be approximately the same as the standard deviation of X.

68.
    a. N (36, 2.5)

    b.
    c. 34.31

69.
    a. annual income of someone in third world country
    b. Avg salary from sample of 1000 in third world country
    c. N (2000, 8000/√1000)
    d. Large differences between data values can have smaller averages than standard deviations
    e. The sample mean distribution will more likely be closer to the population mean.

71. B: N (4.59, 0.10/√16)

95.
    a.
        i. 71
        ii. 3
        iii. 48
    b. Height of male swedes, mean height of sample of 48 male swedes
    c. Normal, sample size > 30, standard deviation is known
    d.
   i. Confidence interval: (70.15, 71.84)
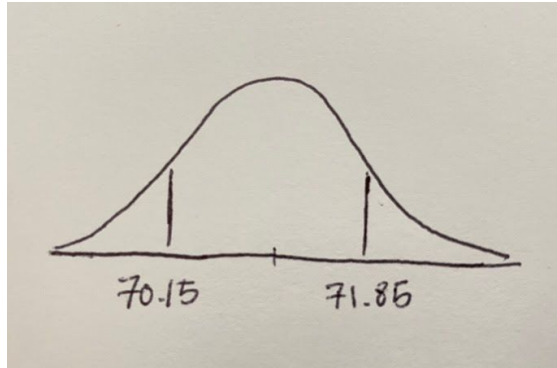
    ii.

    iii.   Error bound: 0.8487

  e. Confidence interval will decrease when sample size is increased, so there's no need for as large an interval to represent the population mean.

96.

  a. $\overline{X}$ is the mean length of of 84 randomly selected conferences, X is the length of the conferences

  b. T-distribution with n-1 degrees of freedom b/c the population distribution is unknown
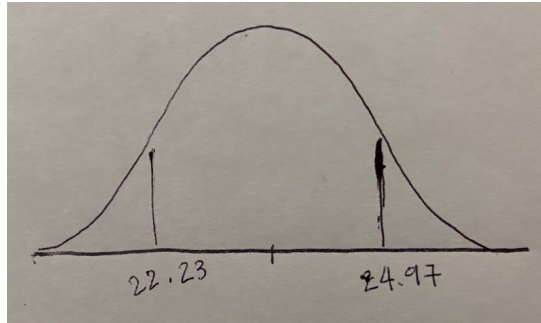
  c.

    i.   Confidence interval: (3.6622, 4.2178)
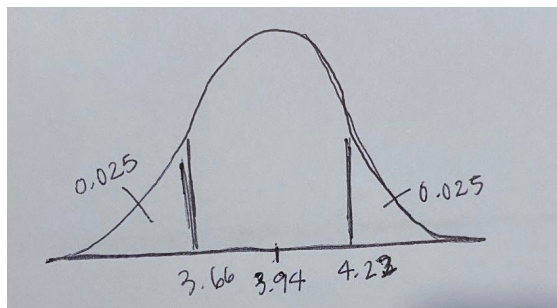
    ii.

    iii.   Error bound: 0.2778

97.

  a.

    i.   23.6

    ii.   7

    iii.   100

  b. $\overline{X}$ is mean time to complete tax forms in sample of 100, X is time needed to complete one tax form

  c. N (23.6, 7/√100)

  d.

    i.   (22.23, 24.97)

ii.

iii.   Error bound: 1.372

e. The sample size needs to change. Determine the confidence level then use the EB to find the sample size.

f. The larger the interval, the larger the confidence level.

g. If the confidence level is increased, the error bound or sample size should be increased as well.