Math 58B, Spring 2023 Jo Hardin WU # 16 Thursday, March 23, 2023

Your Name: _____

Names of people you worked with: _____

- 1. Do you prefer the mountains or the beach?
- 2. What is your group status for the semester project? For example: you have a group set, you think you might have people to work with, you don't have ideas for who to work with, something else?
- 3. Consider the Ethan Allen example. Recall that we are assuming that the CDC information on weights is a reasonably accurate description of the people who board the Ethan Allen ($\mu = 167$ lbs and $\sigma = 35$ lbs).

Roughly sketch three curves. For each curve, indicate at least three values (numbers) on the x-axis.

- (a) A histogram describing the weights of 100 randomly sampled individuals.
- (b) A histogram describing the sample means of 5000 difference samples, each sample of 100 random people.
- (c) A histogram describing the T-score of 5000 different samples (from a population of $\mu = 167$ lbs), each sample of 100 random people.

Solution:

3 (a) Likely the distribution is skewed right. The x-axis should have weights (i.e., be in lbs) you would expect to see in the population.



3 (b) The sampling distribution of the sample mean should be centered at 167lbs with a standard deviation of 3.5lbs. Again, the units on the x-axis are lbs. Pay attention to how much more narrow the sampling distribution of the mean is as compared to the population distribution or the data distribution.



3 (c) The sampling distribution of the T score should be centered at 0 with a spread that is only slightly wider than a N(0,1). Notice that the x-axis is no longer in units of "lbs". Instead, the x-axis is scaled, akin to using Z scores.

