Worksheet: Hypothesis Testing Warmups

0. **Box 0**: You have a box of number tickets. It contains 500 $\boxed{1}$s, 500 $\boxed{9}$s and 280 $\boxed{5}$s. You draw a random sample of 16 tickets.

a) What is the smallest that the sum of the tickets can be?

b) What is the largest that the sum can be?

c) About what do you expect the sum to be.

d) Put a plus or minus on your answer to c).

1. **Box 1**: You have a box of numbered tickets but you don't know what numbers are on the tickets. Take a random sample of 16 tickets.

a) Calculate the mean and sd of your sample.

b) Estimate the mean of the numbers on all the tickets.

d) Put a plus or minus on your answer to b).

e) Repeat a) – d) with another sample.

f) Someone tells you that the average is really 4.48. Do you believe them?

g) Someone tells you that the average is really 5.0. Do you believe them?

2. **Box 2**: You have a box of numbered tickets but you don't know what numbers are on the tickets. Take a random sample of 16 tickets.

   a) Calculate the mean and sd of your sample.

   b) Estimate the mean of the numbers on all the tickets.

   d) Put a plus or minus on your answer to b).

   e) Someone tells you that boxes 1 and 2 have the same average. Do you believe them?