**Week 7: Hypothesis Testing**

Open into stats: 4.6; 4.8; 4.10; 4.12; 4.14; 4.22; 4.28; 5.6; 5.28; 5.30

1. After buying new voting machines, a county finds that it has 72% voter turnout. This is compared to its historical average of 60%, with a 4% standard deviation. What additional information is needed to conduct a hypothesis test that the new machines helped increase turnout? Do the assumptions for a hypothesis test hold?

2. The average math scores on a standardized test in a school district is 75%. One teacher’s students had an average of 82%. The school district calculated a p-value of .04 for the alternative hypothesis that this teacher was providing significantly better instruction than the others in the district. This was the lowest p-value in the entire district. Do you think the following conclusions drawn from this example are true? Why or why not?

a) This teacher had the highest average test scores throughout the district.

b) There’s only a 4% chance that the performance of the teacher was due to random chance.

c) There’s a 96% chance that the teacher is significantly better than their peers

d) We can conclusively say that the hypothesis that the all teachers throughout the district are equally competent is false.