**AP Statistics – confidence intervals for one sample mean unknown – 2 El Gargy problems**

1. Kerplakistanis are very proud of their back hair. They often go to salons to have it styled. El Gargy owns a popular franchise of hundreds of these salons across Kerplakistan. It’s called “Back Scissorwhiz”. He is interested to see how many customers his stores are averaging on a Saturday. He does not have time to check store receipts for every one of his franchises, so he randomly selected 30 stores from across Kerplakistan to send their Saturday receipts to him. He discovered that the 30 stores averaged 22.3 customers per day with a standard deviation of 5.5 people. Can you provide El Gargy with an estimate of the average number of Saturday customers for all of his stores by providing him with a 95% confidence interval estimate?

2. El Gargy owns many goat cheese farms across Kerplakistan. He has received many complaints from the managers of these farms that he often doesn’t order enough feed for the goats to thrive and make tasty cheese. The amount of feed necessary is based on the weight of the goat. One months supply for one goat has to be quadruple his own weight. A 115 lb goat needs 460 lbs of feed for one month. El Gargy owns thousands of these farms so he can’t measure the average weight of all his goats. He selects a farm that is local to his headquarters and measures the weight of 18 random goats on that farm. Here is the weight of those goats in lbs:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 115 | 159 | 95 | 150 | 159 | 153 | 121 | 177 | 219 |
| 123 | 154 | 139 | 158 | 136 | 181 | 122 | 77 | 136 |

Can you estimate how much feed per goat El Gargy should order for all his goat farms so that El Gargy can be 99% sure of the estimate?