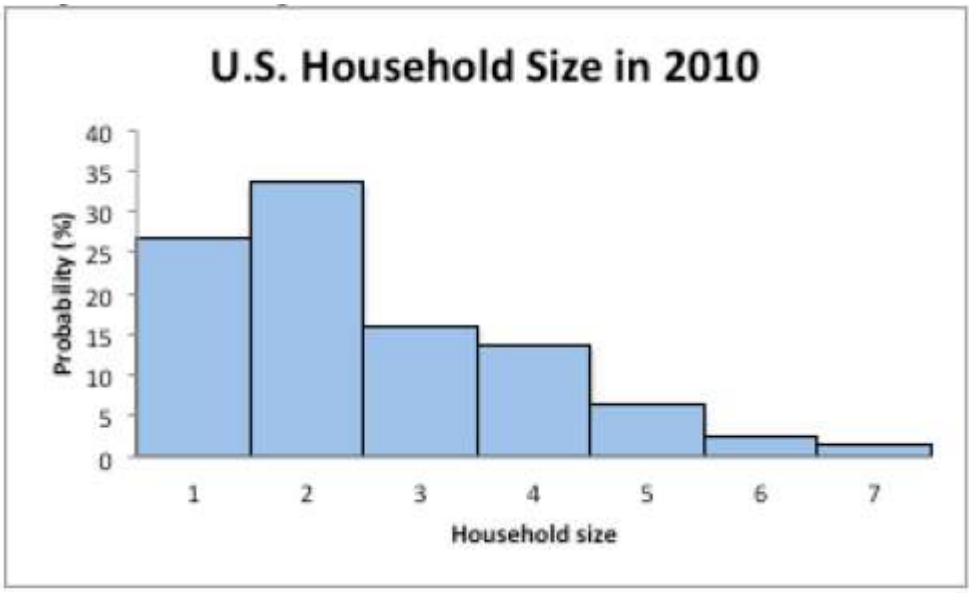
1. This problem deals with the number of people in a household, and the probability of that even occurring.

Size of household	1	2	3	4	5	6	7 or more
Probability	26.7%	33.6%	15.8%	13.7%	6.3%	2.4%	1.5%



The parameters of the graph are: $\mu=2.525$, $\sigma=1.422$

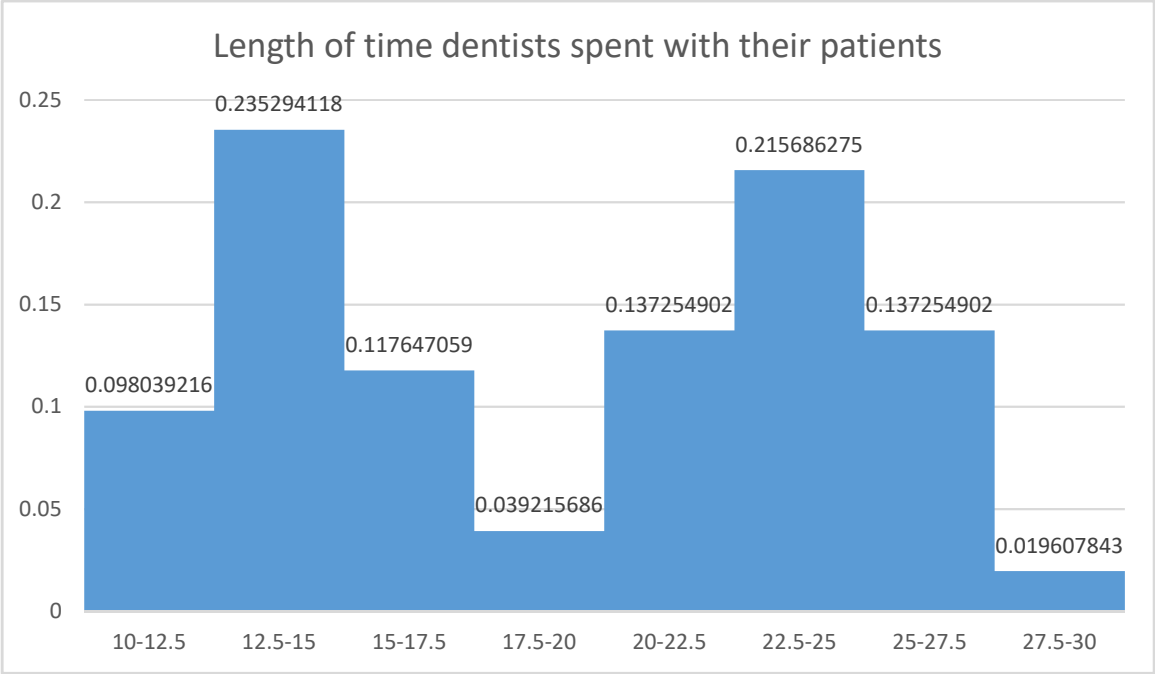
a. What is the probability that a random sample will exceed 4 people?

b. What is the probability that a mean of 30 people will exceed 4 people, from the sampling distribution?

c. For a random sample, how many people are in a home that is one standard deviation below the mean?

d. For a mean of 30 people, how many people are in a home that is one standard deviation below the mean, in the sampling distribution?

2. The length of time dentists spend with patients.



The parameters of the graph are: μ=19.19, σ=5.279

a. If you take a sample size of 40, what can you say about the shape of the sampling distribution for the sample means? Why?

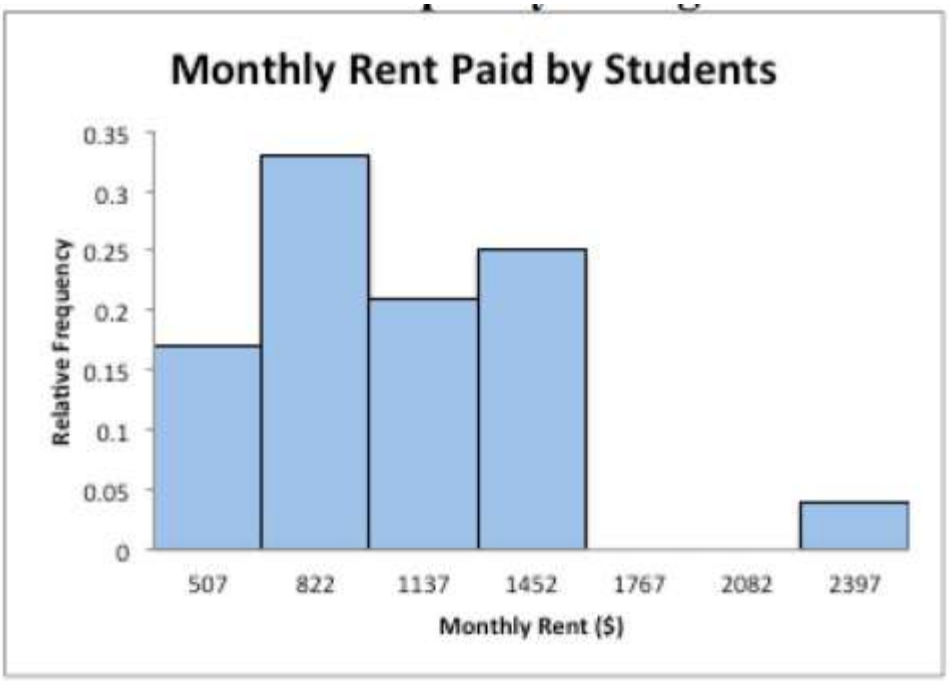
b. What would the mean be for the distribution in part a?

c. What would the standard deviation be for the distribution in part a?

d. What's the probability of an individual having a visit with the doctor that is less than 25 minutes?

e. What is the probability that the average of a sample of 40 has a visit that is less than 25 minutes, from the sampling distribution?

3.



The parameters of the graph are: μ=1055.1, σ=426.40

a. What's the probability that a randomly selected student pays more than 1767 dollars for their monthly rent?

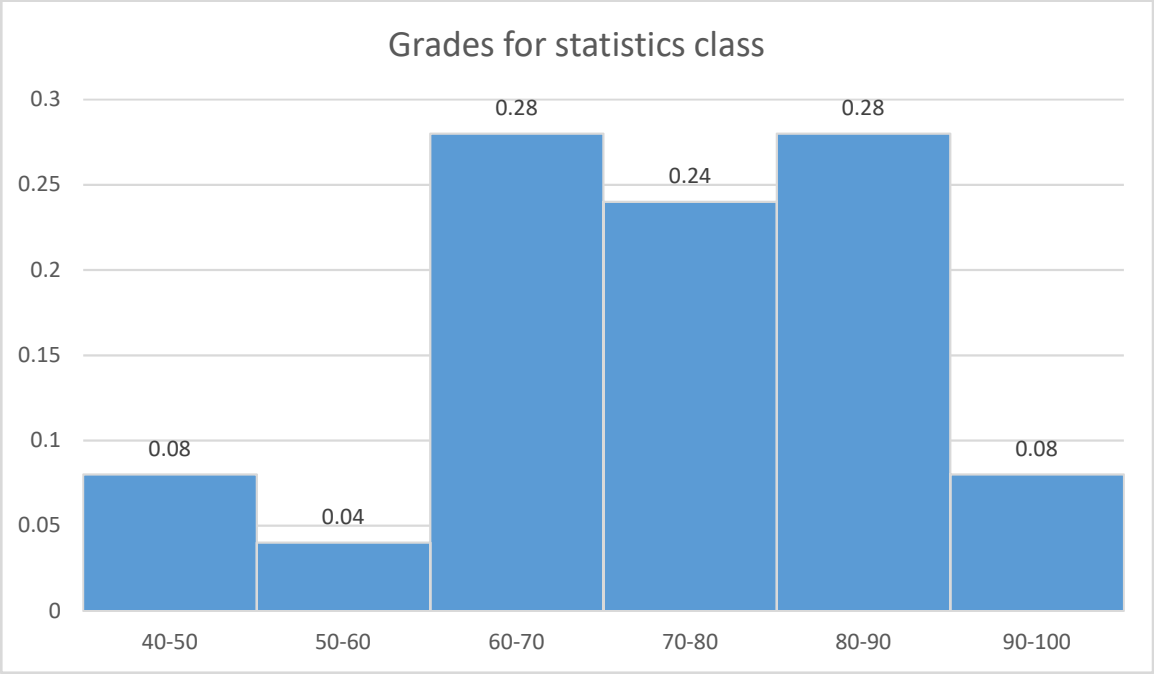
b. What is the sampling distribution of sample means, if the sample size is 50? In other words, what does the sampling distribution look like?

c. What's the probability that the average of a sample size of 50 is less than 822, from the sampling distribution?

d. How much would one student have to pay to be in the 17^{th} percentile?

e. How much would the average of 50 people have to pay to be in the 17^{th} percentile?

4.



The parameters of the graph are: $\mu=71.4$, $\sigma=18.52$

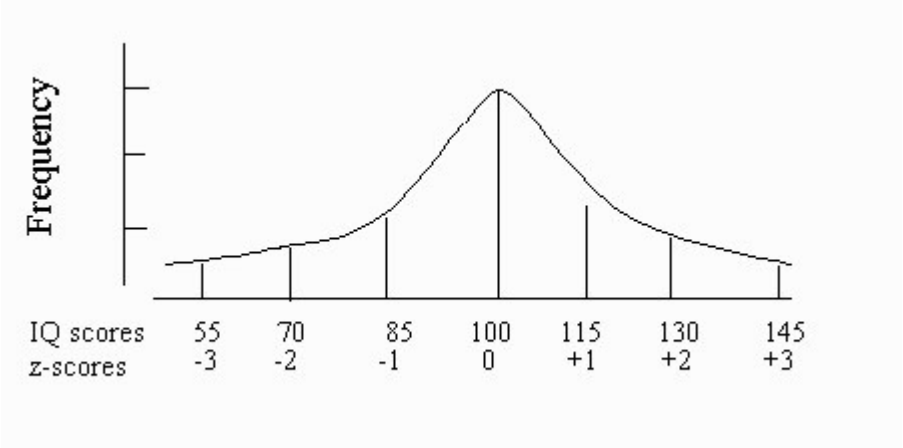
a. What is the probability of one student scoring above 50%?

b. What is the probability that the average score of 10 students is above 50%, from the sampling distribution?

c. What is the normal range of scores for an individual (one standard deviation away)?

d. What is the normal range of scores for the average of 10 students, from the sampling distribution?

5. Here is a distribution of IQ scores for the population



The parameters of the graph are: $\mu=100$, $\sigma=15$

a. What is the sampling distribution for the average IQ test for 50 people? Does is differ from the theoretical distribution that we worked with before?

b. What is the probability that a student score between 80 and 120 for their test?

c. What's the probability that the average score of 5 students is between 80 and 120?

d. What is the 90^{th} percentile for the average score of 5 students?