Question 1.1. At least _____% of the people are between 25 and 65 years old. Explain your answer! **(6 Points)**

z = 4, so the z-scores would be 1 - 1/16 = 0.9375, so there would be 93.75% of the people.

Question 1.2. At most _____% of the people have ages that are not in the range 25 years to 65 years. Explain your answer! **(6 Points)**

at most 6.25% since at least 93.75% of the people already within the range of 4 * 5 SDs

Question 1.3. At most _____% of the people are more than 65 years old. Explain your answer! **(6 Points)**

Hint: If you're stuck, try thinking about what the distribution may look like in this case.

at most 6.25%

Question 2.2. Suppose the data science class decides to construct a 90% confidence interval instead of a 95% confidence interval, but they still require that the width of the interval is no more than 6% from left end to right end. Will they need the same sample size as in 2.1? Pick the right answer and explain further without calculation. **(6 Points)**

1. Yes, they must use the same sample size.
2. No, a smaller sample size will work.
3. No, they will need a bigger sample.

A smaller sample size will work

Question 2.4. This shows that the percentage in a normal distribution that is at most 1.65 SDs above average is about **95%**. Explain why 1.65 is the right number of SDs to use when constructing a **90%** confidence interval. **(6 Points)**

Because the lower confidence interval, elements would be more constrained therefore the spread aka SDs would be smaller.

Question 3.2. Why does the Central Limit Theorem (CLT) apply in this situation, and how does it explain the distribution we see above? We recommend reviewing 14.4 for a refresher on CLT. **(6 points)**

Type your answer here, replacing this text.