Group Members: _____

1. Suppose that the number of Krabby Patties sold at the Krusty Krab on a randomly selected day, X, follows a normal distribution with a mean of 537 patties and a standard deviation of 38.6 patties.

   (a) Describe the distribution of $\overline{X}$, the mean number of Krabby Patties sold per day for a random sample of 27 days, by identifying the **mean** $\mu_{\overline{X}}$ and **standard error** $\sigma_{\overline{X}}$. Round standard error to four places.

   (b) What distribution does $\overline{X}$ follow? How can you tell?

   (c) Suppose that a random sample of 27 days is selected. What is the probability that the sample mean number of Krabby Patties differs from the population mean by **more than** 15 patties? Include a probability statement, your answer, and an appropriately labeled and shaded sketch.

2. A national survey estimated that of all U.S. citizens who had visited the hostpital within the last five years, approximately 69% were satisfied with the treatment received during their visit. In an evaluation of their patient care standards, the staff at Grey-Sloan Memorial Hospital are interested in seeing how their hospital compares to the national result. They plan to interview a sample of 235 randomly selected patients who stayed at Grey-Sloan in the past five years.

   (a) Describe the distribution of $\hat{p}$, the proportion of satisfied patients in a sample of 235, by describing the **mean** $\mu_{\hat{p}}$ and **standard error** $\sigma_{\hat{p}}$. Round standard error to four decimal places.

   (b) What distribution does $\hat{p}$ follow? How can you tell?

   (c) What is the probability that the proportion of satisfied hospital patients at Grey-Sloan Memorial Hospital differs from the national result by **less than** 5%? Include a probability statement, your answer, and an appropriately labeled and shaded sketch.