The Candy Machine

Suppose a VERY large candy machine has 15% orange candies. Imagine taking an SRS of 25 candies from the machine and observing the sample proportion \( \hat{p} \) of orange candies.

(a) What is the mean of the sampling distribution of \( \hat{p} \)? Why?

(b) Check to see if the 10% condition is met.

(c) Find the standard deviation of the sampling distribution of \( \hat{p} \).

(d) Is the sampling distribution of \( \hat{p} \) approximately Normal? Check to see if the Normal condition is met.

(e) If the sample size were 75 rather than 25, how would this change the sampling distribution of \( \hat{p} \)? How would this impact the Normal condition?
Planning for College

The superintendent of a large school district wants to know what proportion of middle school students in her district are planning to attend a four-year college or university. Suppose that 80% of all middle school students in her district are planning to attend a four-year college or university. What is the probability that a SRS of size 125 will give a result within 7 percentage points of the true value?

State:

Plan:

Do:

Conclude: