Applying Sampling Distribution Models for \( \hat{p} \)

1. The National Institute for Standards and Technology (NIST) mandates that in any store no more than 2% of the items scanned through the electronic checkout scanner should have an inaccurate price.

   In a recent test at a Wal-Mart a sample of 289 items was randomly selected for scanning. If 2% of the items at this Wal-Mart have an inaccurate price, what is the probability that the sample proportion of items that scan inaccurately is between 2.8% and 3.5%?

2. The Harvard School of Public Health recently conducted a study that indicated 44% of college undergraduates binge drink (more than 5 drinks at one sitting for males, more than 4 drinks at one sitting for females) at least once a week.

   A college professor at a midwestern university selected a random sample of 244 students at her school; 36% of the students in her sample said they participated in binge drinking in the previous week.

   Assume the 44% given by the Harvard study; compute the probability that in a sample of 244 students, 36% or less have engaged in binge drinking.