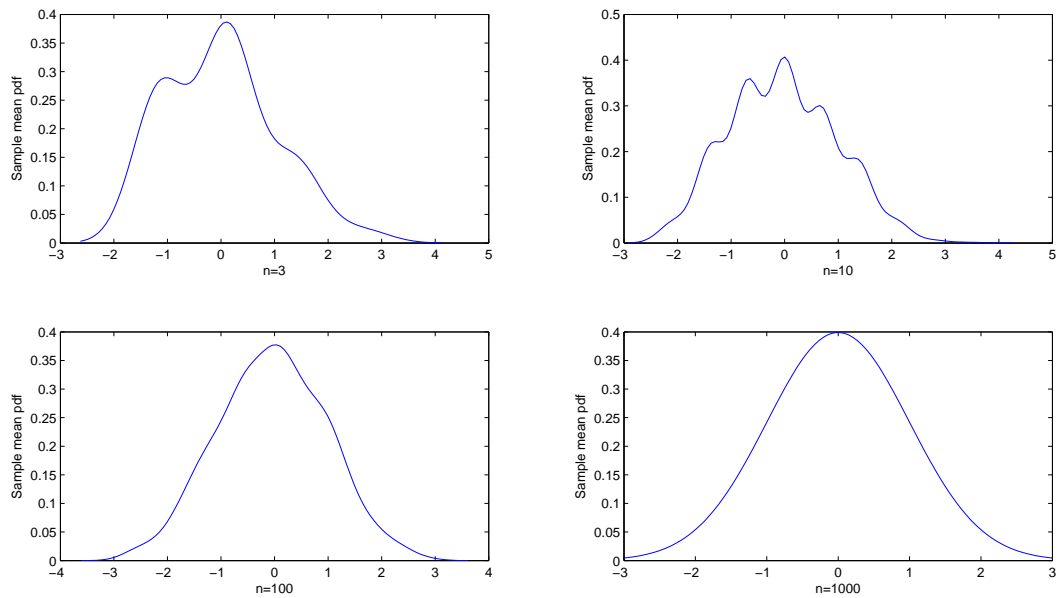


**TA SESSION SAMPLE  
ECON 341: ECONOMETRICS**

J. MARCELO OCHOA

For  $\{X_i\}$  be iid Bernoulli( $p$ ) random variables and  $Y_n = \frac{1}{n} \sum_{i=1}^n X_i$  the figures show the plot of the empirical cdf of  $\sqrt{n}(Y_n(1 - Y_n) - p(1 - p))$  for different sample sizes



**Problem (5.3).** Let  $\{X_i\}_{i=1}^n$  be iid random variables with continuous cdf  $F_X$ , and suppose  $E(X_i) = \mu$ . Define the random variables  $\{Y_i\}_{i=1}^n$  by,

$$Y_i = \begin{cases} 1, & \text{if } X_i > \mu; \\ 0, & \text{if } X_i \leq \mu. \end{cases}$$

Find the distribution of  $\sum_{i=1}^n Y_i$ .