

## PRACTICE “QUIZ”

**Question 1** A bottling company uses a filling machine to fill plastic bottles with a popular cola. The bottles are supposed to contain 300 milliliters. In fact, the contents vary according to a normal distribution with mean  $\mu$  (unknown) and standard deviation  $\sigma = 3$  ml. A SRS of 400 bottles is taken and it is found to have a sample mean of  $\bar{x} = 298.5$  ml.

(a) What is the sampling distribution of  $\bar{x}$ ? Is this an exact distribution, or merely approximate due to the central limit theorem?

(b) Give a 95% confidence interval for  $\mu$ . Recall that the value of  $z^*$  corresponding to a 95% confidence interval is 1.96.

**Question 2** In a SRS of 300 college students, respondents were asked to state whether they intended to vote Democratic, Republican, or neither in the next presidential election. 283 responded either Democratic or Republican, and their choices are summarized below along with gender:

	Gender	
	Male	Female
Democratic	68 51.5%	90 59.6%
Republican	64 48.5%	61 40.4%

A chi-square analysis yields a chi-square statistic of 1.868. What conclusion can you draw from this?