CLASS: MA IV 2022 QUIZ Prof Sogg TIME: 1 HOUR

$\Sigma \bar{X}$

Instructions: Answer all questions

$\Sigma X = \bar{X}n$

1. Show that $s^2 = \frac{1}{n-1}\sum(x-\bar{x})^2$ is unbiased for population variance σ^2

$x \sim N(\mu, \sigma^2)$

2. Define completeness
3. If $x \sim N(\mu, 81)$, find the 95% confidence interval for μ when $\bar{x} = 14$ and $n = 100$
4. Define Neyman -Pearson Lemma

$Z = \frac{\bar{X}-\mu}{\sigma/\sqrt{n}}$