PSTAT 120B - Outline (Shravan)

- 1) A random sample is a collection of independent and identically distributed (iid) random variables

 Yi, Yz, Yz... Yn are a random sample if they have properties that allow them to be written as:

 Y, Y, Yd F(y)
- 2) A statistic is a function of the observable random

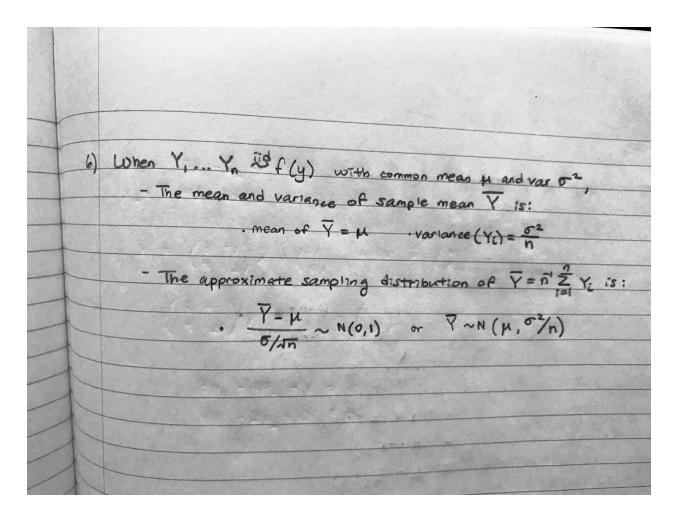
 Variables in a sample and known constants

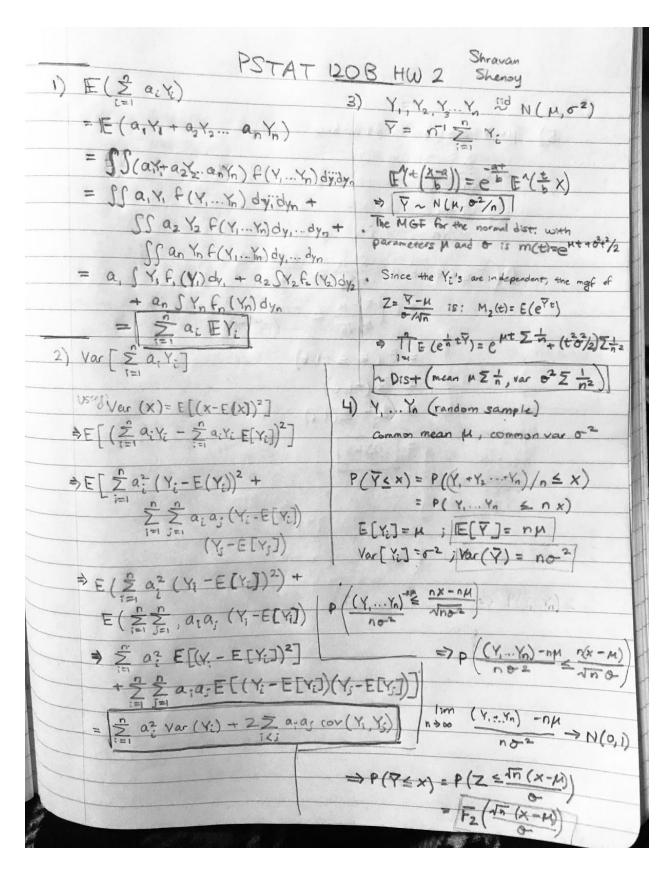
 any function h (*)
- 3) The term " sampling distribution" refers to the probability destributions of statistics.
 - The sampling distribution of a statistic provides a thorotical model for the relative frequency histogram of the possible values of the statistic that would observed through repeated sampling
- 4) Central Limit Theorum The sample average of a random
 Variables converges to a Gaussian distribution, which
 can be stated in several equivalent ways:

· 10 (2-h) = N(0,02) · 10 (2-4) = N(0,1)

· \frac{\frac{1}{40} - \text{M}}{\sigma / \sigma_0} \ N(0,1)

5) When $Y_1, \dots, Y_n \stackrel{id}{\sim} N(\mu, \sigma^2)$, the sampling distribution of $\overline{Y} = n^{-1} \stackrel{f}{\sim} Y_{E}$ is normal with mean $\mu_{\overline{Y}} = \mu$ and variance $\sigma_{\overline{Y}}^2 = \sigma^2/n$





5)
$$\mu = 7 \implies 5 = .5$$
 $\sigma_{x} = \frac{5}{464}$
 $\Rightarrow \frac{x-\mu}{\sigma/\sqrt{n}}$
 $\Rightarrow \frac{x-\mu}{\sigma/\sqrt{n}} \le \frac{6.90-7}{5/8}$
 $\Rightarrow p(x-\mu \le -10/5)$
 $\Rightarrow p(x \le -1.6)$
 $\Rightarrow f(-1.6)$
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