STAT 308 - Handout #18

Example:
Psychologists have made extensive studies on the relationship between child abuse and later criminal behavior. Consider a study that consisted of the follow-ups of 52 boys who were abused in their preschool years and 67 boys who were not abused. The data of number of criminal offences of those boys in their teens yielded the following summary statistics:

Abused	**Non-abused**
$\bar{x}_1 =$	$\bar{x}_2 =$
$s_1 =$	$s_2 =$

a. Determine a 95% CI for the difference between the true means for the two groups.

Sample sizes?

Large Samples?
Variances known?

$(\bar{x}_1 - \bar{x}_2) \pm$ =

= = (0.3108 , 1.4692)

We estimate, with a probability of .95, the

Example (Criminal Behavior continued)

b. Is the mean number of criminal offences significantly higher for the abused group than that for the non-abused group? Use α=0.05.

Abused	**Non-abused**
$\bar{x}_1$=2.52	$\bar{x}_2$=1.63
s_1=1.84	s_2=1.22
n_1=52	n_2=67

H_0 :
H_a :

Large Samples?
Pop'n SD's known?

Hence, the test statistics to use is:

$$Z = \quad = \quad = \frac{0.89}{0.2955} = 3.0118$$

α=0.05

Reject H_0 if

→

Conclusion:
There is evidence from the sample that the mean number of criminal offences

c. Calculate the p-value associated with the test in part (b).

p-value?

p-value = =
= =

Since p-value =

d. Is the mean number of criminal offences different for the abuse group than that for the non-abused group? Use α=0.05.

H_0 :
H_a :

Test Statistics?

α=0.05

→

e. Calculate the p-value associated with the test in (d).

p-value?

p-value = =
=

p-value=