pg 761 # 14a
pg. 762 #19a pg 771 #24,26 pg 776 #34

(14a) Type 1: (Falsly Reject H_0) Type 1 is committed when the bank concludes there will be an increase under the no fee offer when infact that is not the case.

$H_0: \mu_d = 0$
$H_a: \mu_d > 0$

Type II: (FTR H_0 & need to) Type 2 is committed when the bank concludes there will be no increase in charges when the no-fee offer is given.

The Type II in this case is more serious Because the Bank would ~~not~~ decide to not change the policy & miss out on money making potential of increased charges

(19a) Type 1 error is commited when the experts conclude there is a difference (increase) in yield and there really isnt an increase

$H_0: \mu_d = 0$
$H_a: \mu_d > 0$

Type II error is committed when the experts conclude there is no mean difference but in fact there is an increase in yield.

Type II more serious B/c in trying to increase yield and make more money they wont.

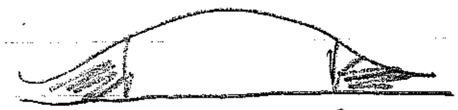
$$z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$ hypothesized

$\alpha = .05$

(24)

SRS ✓
$np > 10$
$nq > 10$
10% rule ✓

Ho : $p = .73$ two tailed
Ha : $p \neq .73$



-1.95 α 1.95 α
From $\alpha = .05/2$

$\hat{p} = \frac{132}{200} = .66$

Test Statistic: $z = \frac{.66 - .73}{\sqrt{\frac{(.73)(.27)}{200}}} = \frac{-.07}{.0314} = -2.23$ Rejection Region

$P = .0132 \times 2$ $.0264 < .05$

There is sufficient evidence to reject the null at a .05 significance level that the pop proportion at the univ. is not equal to .73 for prop. of students who wish to be well ~~off~~ as a priority.

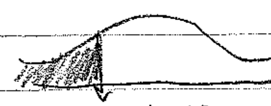
(b) $p = .66 \pm 1.96 \sqrt{\frac{(.66)(.34)}{200}}$

w/ 95% confidence

$(.5943, .7257)$. The true univ. pop proportion of students at the univ. is between 59% to 72%

(26) $\hat{p} = \frac{23}{440} = .0523$ Conditions : SRS ✓
$np > 10$ $440(.1) = 44$ ✓
$nq > 10$ $440(.9) = 396$ ✓
10% rule $10 \times 440 = 4400$ # patients ✓

Ho : $p = .1$
Ha : $p < .1$



$z = -1.645$

$z = \frac{.0523 - .1}{\sqrt{\frac{.01 \times .9}{440}}} = -3.34$

Reject Ho → support Ha

Signif. evidence to reject Ho and support Ha that less than 10% will suffer adverse effects

(26b) Type I error would be commited if we reject Ho that proportion is 10% ~~and we~~ supporting less than 10% having side effects when in fact it is not <10%

Type II error would be commited ~~if~~ researchers conclude that the proportion for adverse side effects is .1 when it is not and infact less than .1

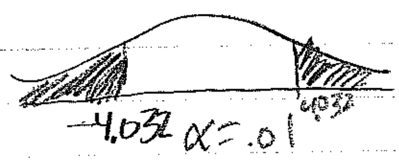
Type I error more serious B/c researchers dont want to mislead consumers

(34) The subjects responses are not independent given the two treatments

The mean difference is the parameter ~~of~~ interest ~~##~~

$H_0: \mu_d = 0$

$H_a: \mu_d \neq 0$



$n=6 \Rightarrow$ normal ✓
SRS ✓
Independence ✓
10% rule total pop > 60 (6×10)

$t = \dfrac{-.326}{.181/\sqrt{6}} = -4.4118 \rightarrow$ Rejection Region $P = .0069$

$.0069 < .01$

We have ~~sufficient evidence to reject the Ho that the mean diff = 0 and support the fact that there is~~ ~~a~~ ~~a difference~~ in the 2 chemical measurements in the brain