

16-15

a) pages in Sports Ill. or Soap Opera Digest

b) S.I. $\hat{p} = \frac{54}{116} = .466$

S.O.D.

$$.466 \pm 1.96 \sqrt{\frac{.466(1-.466)}{116}}$$

$$.466 \pm .0908$$

$$(.375, .556)$$

$$(-.145, .286)$$

c) I am 95% confident that the prop. of all S.I. pages that contain ads is in this interval.

*d) If you repeatedly take samples of 116 S.I. pages and construct 95% C.I. for each, in the long run, about 95% of those intervals would contain the actual prop. of all S.I. pages that contain ads.

e) YES! each interval contains the sample prop. (\hat{p})f) Because \hat{p} is the midpoint of the interval,

16-17

$$\hat{p} = \frac{355}{1000}$$

a) 2nd .378 4th .355 5th .386 $\frac{386}{1000}$

b)

$$.355 \pm 1.96 \sqrt{\frac{.355(1-.355)}{1000}}$$

.378 ± .355 ± ,0297

(,) (.3253, .3847)

c) I'm 95% ^{confident} the prop. of times no mother would get the right baby is in this interval.

d) $p = .375$

e) yes

f) 95% → if you repeatedly take samples and construct 95% c.i. in this manner, 95% ^{of the intervals} would capture the actual prop. in the long run.

g) $.355 \pm 1.28 \sqrt{\frac{.355(1-.355)}{1000}}$

(.3356, .3744) YES → 80% ...

17-1

a) .25 RF

b) param. $p = .25$

c) greater than .25
 $p > .25$

d) CLT says samp. dist. of \hat{p} will be:

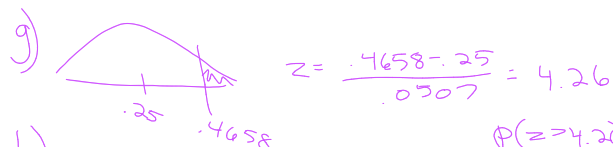
- approx normal $73(.25) \geq 10$
- centers @ mean of .25 $73(.75) \geq 10$
- $\mu_{\hat{p}} = .25$

• st. dev. $\sigma_{\hat{p}} = \sqrt{\frac{.25(1-.25)}{73}} = .0507$

e) yes $\Rightarrow n$ is large

- not an SRS (used her students)
- in this case \Rightarrow prob. not biased.

f) $\hat{p} = \frac{34}{73} = .4658$



h) yes - surp. result...

$P(z = 4.26) \approx 0$

i) p = the prop. of all students that would choose RF.

j) $H_0: p = .25$ (ties are likely)

k) $H_a: p > .25$ (RF is more likely)

l) ^{test stat.} $z = \frac{.4658 - .25}{.0507} = 4.26$

m) $P(z > 4.26) \approx 0$ ← p-value

n) $\frac{34}{73}$ Stat. sign.



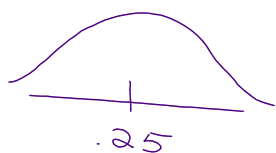
17-2

I. define parameter / hyp.

P = the prop. of all people who would choose RF.

$H_0: p = .25$ each time = likely
 $H_a: p > .25$ RF picked more

II. CLT



$$\sigma_{\hat{p}} = \sqrt{\frac{.25(1-.25)}{74}} = .0503$$

Conditions:

- $np \geq 10$ AND $n(1-p) \geq 10$
 $74(.25) \geq 10$ $74(.75) \geq 10$
 $18.5 \geq 10$ $55.5 \geq 10$

- SRS from pop. interest
 - not a random sample - his ^{student's}
 prob. not biased but proceed with caution.

III. test statistic / p-value (z-score) / (prob.)

$$\hat{p} = \frac{24}{74} = .324$$

$$z = \frac{.324 - .25}{.0503} = 1.47$$

$$Pr(z > 1.47) = .0708$$

↑
p-value

IV. conclusion

sign. level $\alpha = .05$
 $.0708 > .05$

With a p-value of .0708, this is NOT sign. at the .05 level.
 I fail to reject H_0 .

There is not enough evid. to say that people are more likely to choose RF

