Final 6 or 7 pages roughly 5 parts 20 pts each FO

Emphasis last 2 exams and last 6 quizzes

Double integral
Exam 2 review
- marginals
- conditional
- covariance
- independence

$E(Y_i)$

$V(Y_i)$

MLE (with invariance principle)

method of transformations $U = h(Y)$

method of moments

~~t test~~

~~t interval~~

MSE

CLT — normal approx for $\bar{Y}$ (exam 3) — almost certain

normal approx to binomial ~~(or for $\bar{Y}$)~~
normal approx for $\bar{Y}$ ← (Exam 3)
CI's for p, $p_1 - p_2$ or $\mu_1 - \mu_2$
tests for p, $p_1 - p_2$ or $\mu_1 - \mu_2$
~~sample t tests & CI's for μ, $\mu_1 - \mu_2$~~

2 discrete RV's table
- marginal
- conditional
- covariance
- independence

Hw22 do G ✓ F1

Invariance principle: easiest points on exam. ✓

do D from Hw 21 ✓

ex

smokers	$n_1 = 109$	$\bar{y}_1 = 8.9$	$s_1 = 3.3$
nonsmokers	$n_2 = 333$	$\bar{y}_2 = 8.1$	$s_2 = 3.5$

The table represents blood lead concentrations in newborns of 109 mothers who smoked and in newborns of 333 mothers who do not smoke. Doctors want to show that the mean lead concentration (μ_1) in newborns from smokers is greater than the mean lead concentrations in newborns from nonsmokers.

a) what test should be used? 2 sample t

b) If you are told that the pop SD's of the 2 groups are approx equal, what test should be used? (pooled t)

ex] Smoking increases health risks to the infant during pregnancy. Suppose that a random sample of 300 pregnant women who smoked prior to pregnancy contained 51 who quit during pregnancy.

Test the claim that fewer than 25% of female smokers quit during pregnancy.

Hypotheses		test stat z_0	pvalue
H_0 $p = .25$	H_A $p < .25$	-3.2	.0007 ←
	$p > .25$	-3.2	.9993
	$p \neq .25$	-3.2	.0014

soln] z test for p
(want strong evidence that fewer than 25% quit)

ex] experimental corn fed to random sample of 20 chicks, usual brand to another random sample of chicks. Weight gains after 20 days are recorded. Want to show that the experimental brand caused a greater weight gain than the usual brand.

	t_0	pval from computer
pooled	2.47	.0091
→ 2sample t	2.47	.0092

---

t interval Q8 Q93

Also see Old Exam 4, old final