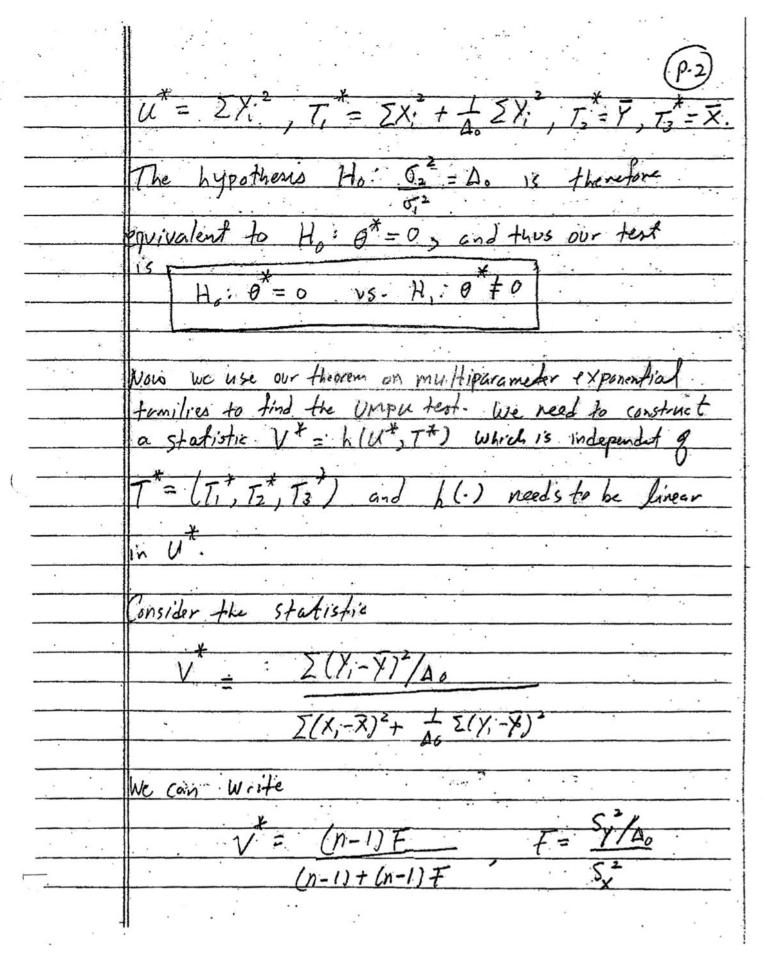
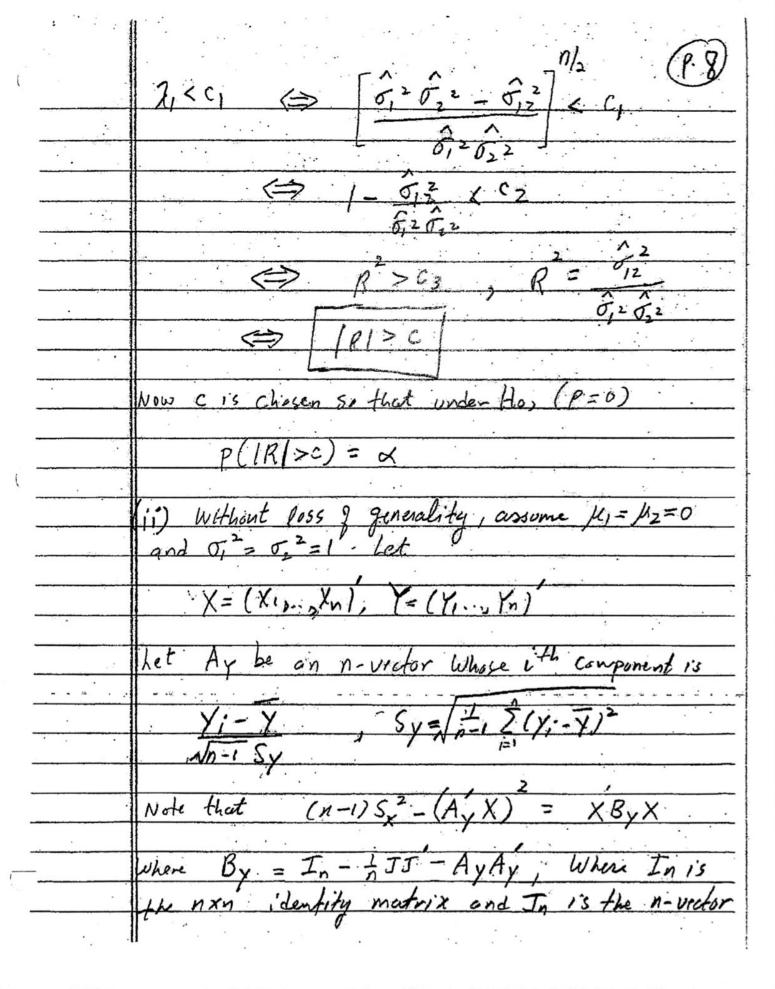
G	This hypothesis test boils down to testing variances in
, , ,	a two-sample problem. The joint density of
	X=(X1, , Xn) and Y=(Y1, , Xn) is
	f(x,y) = C(M,M2, 5, 5,2)
	$\times \exp\left\{-\frac{1}{20_{1}^{2}}\sum_{x_{1}^{2}-\frac{1}{20_{5}}}\sum_{x_{1}^{2}+\frac{1}{20_{5}}}\sum_{x_{1}^{2}+\frac{1}{20_{5}}}\sum_{x_{2}^{2}+\frac{1}{20_{5}}}\sum_{x_{2}^{2}+\frac{1}{20_{5}}}\sum_{x_{1}^{2}+\frac{1}{20_{5}}}\sum_{x_{2}^{2}+\frac{1}{20_{5}}}\sum_{x_{1}^{2}+\frac{1}{20_{5}}}\sum_{x_{2}^{2}+\frac{1}{20_{5}}}\sum_{x_{2}^{2}+\frac{1}{20_{5}}}\sum_{x_{1}^{2}+\frac{1}{20_{5}}}\sum_{x_{2}^{2}+\frac{1}{20$
	Where $\bar{X} = \frac{1}{h} \Sigma X_i$, $\bar{Y} = \frac{1}{h} \Sigma X_i$.
	This is an exponential family with the four parameters
	This is an exponential forming with the your forming
	$\theta = -\frac{1}{25}$, $\xi = -\frac{1}{20}$, $\xi = \frac{n\mu_0}{5^2}$, $\xi = \frac{n\mu_0}{5^2}$
	and the sufficient Atatistics
	$U = \Sigma Y_1^2, T_1 = \Sigma X_1^2, T_2 = Y_3 = X.$
	This multiparameter exponential family con be
	equivalently expressed in (Lemma 4.4.1 09 Scheffe, Page 123)
	terms of the Parameters
	$\theta^* = -1 + \frac{1}{24 \cdot 5^2}$ $\xi_i^* = \xi_i$, $i = 1, 2, 3$.
	202 20012) 34 36) 6=1,2,3.
	and the stutistics

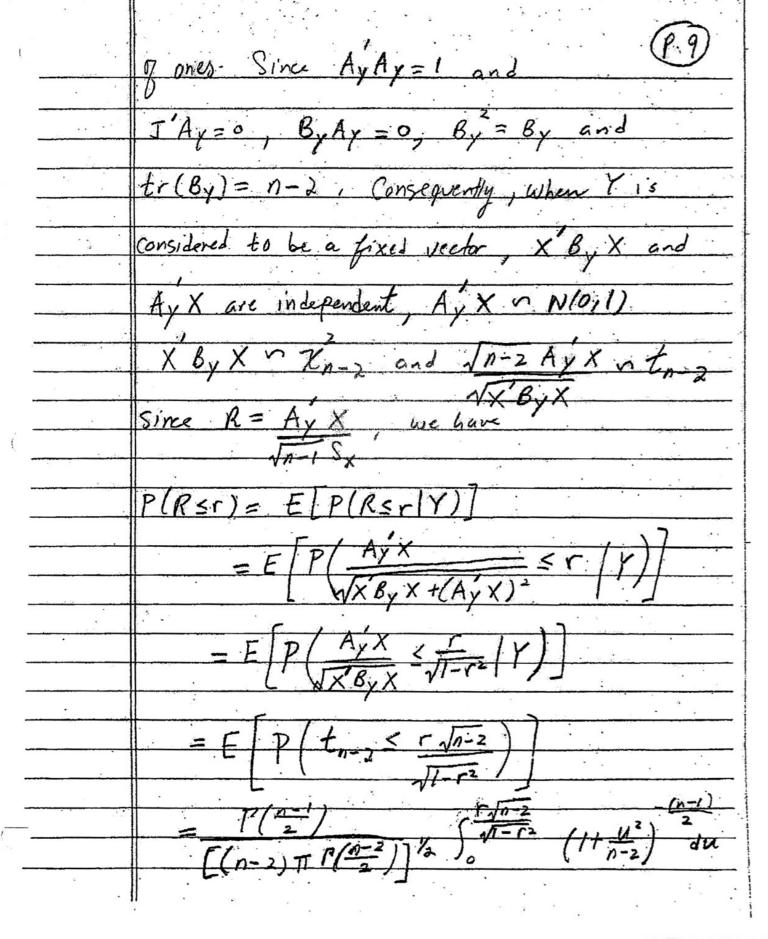


10, 0= A. O. is independent 9 7 is clearly linear in U since V can be written as T +- n T, - n T3 and the Crefficient of U is > 0. Thus, the rejection region of the UMPU test V<C1 or V>C2 otherwise. Where and C2 are determined by = of and E V

	P(F <c1)+ p(f="">c2) = of under Ho</c1)+>
2.1	
	Note that the UMPU test hers the Same test
	Stutistic as the LR test, but different critical
	values. The UMPU fest has the additional
	requirement of being unbiased, that is, (e, c2)
	must Satisfy
,	
	$P(B < c_1) + P(B > c_2) = \alpha$
	Where
	B ~ Beta (1-1, 1-1).
1	
(0)	The sample correlation coefficient R is given by
· · · · · · · · · · · · · · · · · · ·	$R = \frac{\sum (x_i - \overline{x})(y_i - \overline{y})}{\sqrt{\sum (x_i - \overline{x})^2 \sum (y_i - \overline{y})^2}}$
	75/V-2)2 5/V-2)2
	N 2(x,-x) 2(y,-y)
··	3 SUP L(MI, M2, 01, 02)
	2 - 2
	SUP L(M1, M2, 0, 1, 0,2)
1, 1, 1	J
1	

	-0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	$= (2\pi)^{-n} \left[\sum_{i=1}^{n} \left(\frac{1}{2} \sum_{i=$
	UTI) 12/2 exp{-1/2 (Z;-1)} = (Z;-1)}
	(11) 121 CAPEZ (CI-MIZ (CI)
	Where Z,=(X1, Y;)
	$\hat{\mu} = (\bar{x}, \bar{\gamma})$
	$\hat{\sigma}_{i}^{2} = \int \Sigma(x_{i} - \bar{x})^{2} \hat{\sigma}_{2}^{2} = \int \Sigma(y_{i} - \bar{y})^{2}$
	$\sigma_{1}^{2} = \frac{1}{\pi} 2(x_{1} - x_{1})^{2}, \sigma_{2}^{2} = \frac{1}{\pi} 2(y_{1} - y_{1})^{2}$
	16201
	$\hat{\Sigma}_{o} = \begin{pmatrix} \sigma_{1}^{2} & 0 \\ \sigma_{2}^{2} \end{pmatrix}$
	1
	$\sum_{i=1}^{\infty} \left(\overrightarrow{\sigma_{i}}^{2} \overrightarrow{\sigma_{i}}^{2} \right) \widehat{\overrightarrow{\sigma}_{i}}^{2} = \sum_{i=1}^{\infty} \left(x_{i} - \overline{x} \right) \left(x_{i} - \overline{x} \right)$
	2 62 12 12 12 12-1
	\\ \(\(\) \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
	Thus, we reject to When
<i>y</i>	-n/2
	(0,2 0,2) exp = nf
	\= \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	$(6/26)^{2} - 6/2 - 1/2 \text{ exp} = 1/2$
•	





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	(PI)
	iii) Let T= FR R - It is easily seen
	that the density of T is given by
	Jø
	17 /n=1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	$f(t) = \frac{\Gamma(\frac{N-1}{2})}{\sqrt{n\pi} P(\frac{N-2}{2})} \frac{(1-t^2)^{\frac{N-4}{2}}}{(1-t^2)^{\frac{N-4}{2}}} \frac{I(-\sqrt{n} \le t \le \sqrt{n})}{\sqrt{n}}$
	VATT P(1-2) (n)
	White This had been been been been been been been bee
	Where I(.) denotes the indicator function
	Now P(n=1) -> 1 as n-7 x by
	France
	VDπ P(2) 120
	Stirlings formula and thus
	12/
	lim f(t) = 1. e-t/2 I(-0< t<0)
	n-200 1251
	thus In R -> N(0,1)
	thus In R -> N(0,1)
	as $n \to \infty$.
,	