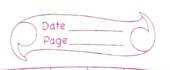


	Name: - Poeshus Shah, UIV: 2019230071
	lutaria 5
	(Evaluation of Measurement of hypothesis testing)
I)	Ho: P=0.7
	H,: P = 0.7
	level af rigrificance = x = 0.1
	Test Statistic: Binomial und. with p - 0.7, n=15
	X=8 + npo = 15x 0.7 = 10.5
	$p = 2f(x \le 8 \text{ when } p = 0.7)$ $= 2 \stackrel{?}{\le} l_{\bullet}(x; 15, 0.7)$
	₹ • 0
	= 2 x 0.1311 (from lunamial prob. table)
	= 0.2622
	: p>0.1 it P>x
-	. We do not reject Ho. So, there is insufficient wideness to doubt the lividing of the
	the builder's claim.
2)	Ho: P= 0.6
_	H.: P>0.6
	$\alpha = 0.05$ given, $x = 76$, $n = 100$, $p = 0.6$
	Z = s(-plo = 70-100x0.6 2.04
	Jolo 40 J100x06x04
	P = P(2>2.04) = 000.0207 (from table)
	•
	as P = x, reject Ho & conclude that new drey is superior



3) let P, be proportion of Mumber resters P, be proportion of surrounding area residents

$$\hat{P}_{1} = \frac{120 - 0.6}{200}$$
 $\hat{P}_{2} = \frac{240 - 0.48}{500}$ $\hat{P}_{3} = \frac{120 + 240}{200 + 500}$ 0.514

Hypotheris: Ho: P, & P. H,: P, >P,

$$Z = \frac{\hat{\rho}_{1} - \hat{\rho}_{2}^{2}}{\sqrt{\hat{\rho}_{1}^{2} (1 - \hat{\rho}_{1}^{2})(\frac{1}{\hat{\rho}_{1}} + \frac{1}{\hat{\rho}_{2}})}} = \frac{0.6 - 0.48}{\sqrt{0.514(1 - 0.514)(\frac{1}{200500})}}$$

7 = 2.869 => P(z > 2.869) = 0.0044

now as PZX, reject to and wonderde that the proportion of Mumbui waters forwaring the proposal is higher than proportion of surrounding area voters.

4) oHo: P=0.2, the writical region is in right tail

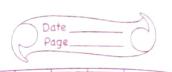
b) Ho: U = 3, the soitind region is in both tails

H,: W 7 3 c) Ho: p > 0.15, the residence in helt tail.

Hi pcois

d) Ho: u = 500 the critical region is in right fail.

e) Ho: u = 15, the witeral region is in both tails.



$$\bar{x}_{i} = \frac{1}{1} + \frac{5}{1} = \frac{9.3 + 8.8 + 6.8 + 8.7 + 8.5 + 6.7 + 8 + 6.5 + 9.2 + 7}{10}$$

$$\bar{X}_{2} = \frac{1}{2} \sum_{i=1}^{n} \frac{1}{2i} = \frac{1}{1} + \frac{9.8 + 9.9 + 10.2 + 10.1 + 9.7 + 11 + 11.1 + 10.2 + 9.4}{10}$$

$$S_1^2 = \frac{1}{n_1 - 1} \left(\frac{S_1^2}{S_2^2} - \frac{1}{n_1 + 1} \right)^2 = \frac{10.865}{9} = 1.207$$

$$S_2^2 = \frac{1}{n_1 - 1} \left(\frac{S_2^2}{S_2^2} \frac{2 - n_2 \bar{s}^2}{S_2^2} \right) = \frac{2.924}{9} = 0.325$$

as sample variances are very different, we cannot assume population variances equal, so we the "unpooled t-test"

$$g_{1} = \left(\frac{s_{1}^{2} + s_{2}^{2}}{n_{1}}\right)^{2} = \frac{1.207 + 0.325}{10}$$

$$= \frac{1 + \left(\frac{s_{1}^{2}}{n_{1}}\right)^{2} + \frac{1}{n_{2}}}{n_{1}} + \left(\frac{s_{2}^{2}}{n_{2}}\right)^{2} = \frac{1.207 + 0.325}{10}$$

$$= \frac{1 + \left(\frac{s_{1}^{2}}{n_{1}}\right)^{2} + \frac{1}{n_{2}}}{n_{2}} + \frac{1}{n_{2}} + \frac{1}{n$$

The test statistic med to test hypotheris is: Tesc

$$T = \frac{\bar{x}_1 - \bar{x}_2 - (M_1 - M_2)}{\int_{\Omega_1}^{S_1 L} + \frac{S_1^2}{\Omega_2}}$$

t-distribution with v = 10 degrees of freedom. Under mill hypothesis, (4, -4) = 0- value at T = 7.95 - 10.26 = -5.90

Since, the text is true-sided, the realise of text is the doubled are under density were of t-distributions with (v=(a), right of the alexalute value of text shotistic

to.000 s(10): 4.50 7 f since |t| = 5.9 is even greates than P(T > 5.9) < 0.0005 so, p-value < 0.001

mean "robustress" of borton is not same fur boths