

1

Goals	Rural	Suburban	Urban	Total
Grades	57	87	24	168
Popular	50	42	6	98
Sports	42	22	5	69
	149	151	35	335

	Exp			
Grades	74.72238806	75.72537313	17.55224	
Popular	43.5880597	44.17313433	10.23881	
Sports	30.68955224	31.10149254	7.208955	

	(Obs-Exp)^2/Exp			
Grades	4.203332451	1.678660741	2.368565	
Popular	0.943216529	0.106909163	1.754841	
Sports	4.168396709	2.66344666	0.676864	
	9.314945689	4.449016563	4.80027	18.56423

D.F = 2*2 = 4

alpha = 0.05

P-Value = 9.49

18.56 > 9.49

Conclusion: HA is accepted

2

Obama	Democrats	Republicans	Total
Approve	842	736	541
Disapprove	616	646	842
Total	1458	1382	1383

Obama	Exp		
Approve	731.5893914	693.4544163	693.9562
Disapprove	726.4106086	688.5455837	689.0438

Obama	(Obs-Exp)^2/Exp		
Approve	16.6630389	2.610303793	33.71336
Disapprove	16.78183433	2.628913373	33.95371

33.44487322	5.239217166	67.66708	106.3512
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$D.F = 1 * 2 = 2$
 $\alpha = 0.05$
 $P\text{-Value} = 5.99$
 $106.35 > 5.99$
 Conclusion: H_A is accepted

3

Success	Yes	No	Total
Yes	108	15	123
No	34	13	47
	142	28	170

Success	Exp
Yes	102.7411765 20.25882353
No	39.25882353 7.741176471

Success	(Obs-Exp)^2/Exp
Yes	0.269173722 1.365095306
No	0.704433359 3.572483461
	0.973607081 4.937578768 5.911186

$DF = 1$
 $\alpha = 0.05$
 $P\text{-value} = 3.81$
 $5.911 > 3.811$
 Conclusion: H_A is accepted.