

THE CHI-SQUARED DISTRIBUTION: PRACTICE 1; GOODNESS-OF-FIT TEST

STUDENT LEARNING OUTCOMES:

- THE STUDENT WILL EXPLORE THE PROPERTIES OF GOODNESS-OF-FIT TEST DATA.

GIVEN:

The following data are real.

The cumulative number of AIDS cases reported for Santa Clara County through December 31, 2003, is broken down by ethnicity as follows:

Ethnicity	Number of Cases
White	2032
Hispanic	897
African-American	372
Asian, Pacific	168
Islander	
Native American	20
	<hr/>
	3489

The percentage of each ethnic group in Santa Clara County is as follows:

Ethnicity	Percentage of total county population	Number expected (round to 2 decimal places)
White	47.79%	1667.39
Hispanic	24.15%	
African-American	3.55%	
Asian, Pacific	24.21%	
Islander		
Native American	0.29%	
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	100%	

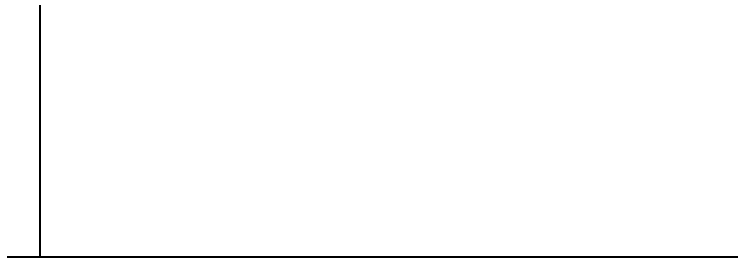
ETHNIC GROUPS

If the ethnicity of AIDS victims followed the ethnicity of the total county population, fill in the expected number of cases per ethnic group.

GENERAL POPULATION

Perform a goodness-of-fit test to determine whether the make-up of AIDS cases follows the ethnicity of the general population of Santa Clara County.

1. H_0 : _____
2. H_a : _____
3. Is this a right-tailed, left-tailed, or two-tailed test? _____
4. degrees of freedom = _____
5. χ^2 test statistic = _____
6. p-value = _____
7. Graph the situation. Label and scale the horizontal axis. Mark the mean and test statistic. Shade in the region corresponding to the p-value.



Let $\alpha = 0.05$

Decision:

Reason for the Decision:

Conclusion (write out in a complete sentence):

DISCUSSION QUESTION

8. Does it appear that the pattern of AIDS cases in Santa Clara County corresponds to the distribution of ethnic groups in this county? Why or why not?