TI-83/84 Contingency Tables

The TI-83/84 calculator can be used to conduct a test for independence in a contingency table (two-way frequency table).

Test for independence of the rows and columns in a contingency table:

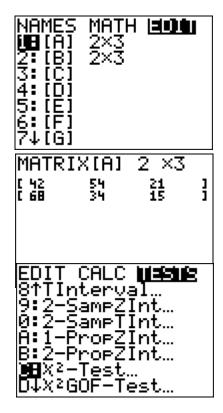
Example: The data in the table below looks at the terminal degree type and age of employees at a local manufacturing plant. Use a χ^2 -test and a 1% level of significance to determine if age and terminal degree type are independent.

	High School Diploma	Undergraduate Degree	Graduate Degree
Under 40 years old	42	54	21
40+ years old	68	34	15

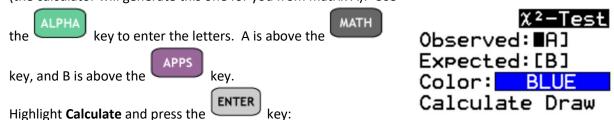
Procedure: For this test we will be using a chi-square test for independence. In this case H_0 : The row and column variables are independent and H_a : The row and column variables are dependent. To test:

- Press the
 for the MATRIX menu on your calculator (some very old calculators will have a specific key for this or a difference combination of strokes)
- Use the arrow key to move over to the **EDIT** menu
- Highlight 1:[A] and press
- Enter the size of the matrix needed, Rows X Columns (it will be the size of the numeric portion of your contingency table, in our case 2 × 3 without headers)
- Enter the table values into your matrix:
- Press STAT
- Use the arrow keys to select the **TESTS** menu
- Select C:χ²-Test by highlighting it with the arrow keys and

pressing ENTER or typing C on the calculator:



• In the menu that comes up enter [A] as your Observed matrix and [B] as your Expected matrix (the calculator will generate this one for you from matrix A). Use



You can now complete your hypothesis test by comparing the P-value to the lpha level given in the

problem. In this case, since the P-value is less than the α level given in the problem (.01) we do reject H_o and can say that at the 1% level of signifigance there is enough evidence to suggest that the age of the employees and the terminal degree type are dependent on each other.

