Chapter 14 / **Example 12**

χ^2 goodness-of-fit test

In this example, instructions are only shown for the final part of the solution.

e Perform the χ^2 goodness-of-fit test, writing down the degrees of freedom used. (The critical value for this test is 9.488.)

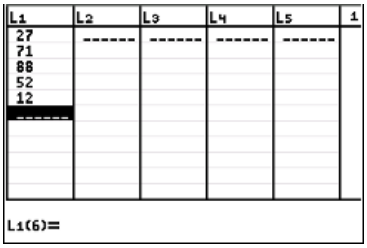
Length of fish, *x* cm	Observed frequency	Expected frequency
$x \leq 15$	27	22.75
$15 \leq x < 18$	71	69.6
$18 \leq x < 21$	88	94.5
$21 \leq x < 24$	52	51.2
$24 \leq x$	12	11.9

Press [STAT] 1:Edit and press [ENTER]

Type the observed frequencies in the first column.

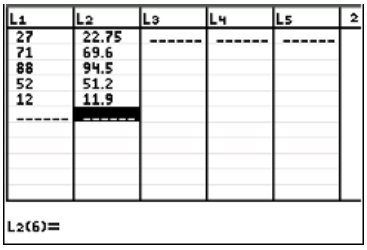
Press [ENTER] or [▼] after each number to move to the next cell.

Note: *If the list contains other numbers, you can clear it by pressing* [STAT] 4:ClrList *and press* [ENTER]. *The home screen displays* ClrList. *Press* [2nd] [1] [L1] *and press* [ENTER]. *Press* [STAT] 1:Edit *and press* [ENTER] *to return to the table*.



Press [▶] to move to the next column.

Enter the expected frequencies in the second column.



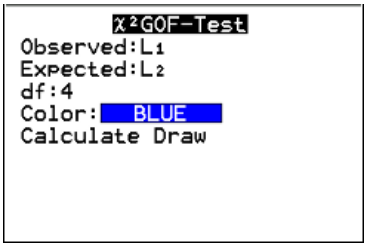
Press [STAT]. Press [▶] [▶] to access the TESTS menu.

Select D: χ^2GOF-Test…

For this test you must enter the degrees of freedom yourself.

Enter df: 4

Use [▼] to navigate down to Calculate. Press [ENTER].

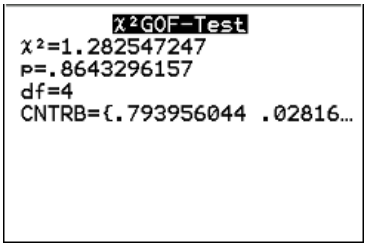


$\chi^2 = 1.28$ and the p-value = 0.864

Either: $1.28 < 9.488$,

or $0.864 > 0.05$

Hence not significant so no reason to reject the null hypothesis.



Chapter 14 / **Example 12**

χ^2 goodness-of-fit test