

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 **MENU** 2  to display the List Editor screen.

Type the observed frequencies in the first column.


Press **EXE** after each number to move to the next cell.

Note: If the list contains other numbers, you can clear it by pressing **[F4] DEL-ALL**.

	List 1	List 2	List 3	List 4
SUB				
1	27			
2	71			
3	88			
4	52			

52

GRAPH CALC TEST INTR DIST >

Press  to move to the next column.

Enter the expected frequencies in the second column.

	List 1	List 2	List 3	List 4
SUB				
1	27	22.75		
2	71	69.6		
3	88	94.5		
4	52	51.2		


51.2

GRAPH CALC TEST INTR DIST >

Press **F3** TEST **F3** CHI **F1** GOF

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

Enter df: 4

Navigate down to Execute using  and press **F1** CALC.

```
χ² GOF Test
Observed: List1
Expected: List2
df          : 4
CNTRB      : List3
Save Res: None
GphColor: Blue
```

$\chi^2 = 1.28$ 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.

χ^2 GOF Test

$\chi^2 = 1.28254725$

p = 0.86432961

df = 4

CNTRB: List3