

Chapter 6 / Example 6

Calculating the mean from a frequency table

The following example is to calculate an estimate of the mean. This method, however, also calculates a number of other useful statistics.

This table shows the ages (in years) of 10 pet cats.

Age (x)	f
$0 < x \leq 2$	2
$2 < x \leq 4$	4
$4 < x \leq 6$	3
$6 < x \leq 8$	1

Find an estimate of the mean age of the cats.

To estimate the mean, you will use the mid-interval values of each of the intervals: 1, 3, 5, 7.

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

Type 1, 3, 5, 7 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	1			
2	3			
3	5			
4	7			
				7
				TOOL EDIT DELETE DEL-ALL INSERT >

Press **▶** to move to the next column.

Enter the frequencies of each of the ages in the second column.

	List 1	List 2	List 3	List 4
SUB				
1	1	2		
2	3	4		
3	5	3		
4	7	1		
				1
				TOOL EDIT DELETE DEL-ALL INSERT >

To calculate an estimate of the mean of the ages represented in the table

Press **F6** > **F6** > **F2** CALC.

Press **F1** 1-VAR.

	List 1	List 2	List 3	List 4
SUB				
1	1	2		
2	3	4		
3	5	3		
4	7	1		
				1
				1-VAR 2-VAR REG SET

The results show that the estimate of the mean (\bar{x}) is 3.6.

So the average age of the cats is 3.6 years.

The table also shows that the sum of the ages (Σx) is 36, the sum of the squares of the ages (Σx^2) is 162, the population standard deviation is 1.8, the sample standard deviation is 1.89... and the number of cats is 10,

1-Variable	
\bar{x}	=3.6
Σx	=36
Σx^2	=162
σx	=1.8
sx	=1.89736659
n	=10

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Further scrolling reveals more statistics.

The minimum age is 1 and the lower quartile is 3, the median age is 3, the upper quartile is 5 and the maximum age is 7, the mode is 3.

1-Variable

```
minX =1
Q1   =3
Med  =3
Q3   =5
maxX =7
Mod  =3
```

Further scrolling reveals yet more statistics.

The number of data mode items is 1 and the data mode frequency is 4.

1-Variable

```
Med  =3
Q3   =5
maxX =7
Mod  =3
Mod : n=1
Mod : F=4
```