

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 **[stat]** 1:Edit and press **[enter]**

Type 1, 3, 5, 7 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.

L1	L2	L3	L4	L5	1
1					
3					
5					
7					

L1(5)=

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

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

L1	L2	L3	L4	L5	2
1	2				
3	4				
5	3				
7	1				

L2(5)=

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

Press **[stat]** and **[▶]** to access the CALC menu.

Select 1:1-Var Stats and press **[enter]**.

Enter L₂ as the FreqList by pressing **[2nd]** **[1]** **[L2]**.

Navigate to Calculate and press **[enter]**.

1-Var Stats					
List:	L1				
FreqList:	L2				
Calculate					

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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 and the sample standard deviation is 1.89..., the population standard deviation is 1.8, the number of cats is 10, the minimum age is 1 and the lower quartile is 3.

```
1-Var Stats
x̄=3.6
Σx=36
Σx²=162
Sx=1.897366596
σx=1.8
n=10
minX=1
↓Q1=3
```

Further scrolling reveals yet more statistics.

The median age is 3, the upper quartile is 5 and the maximum age is 7.

```
1-Var Stats
↑Sx=1.897366596
σx=1.8
n=10
minX=1
Q1=3
Med=3
Q3=5
maxX=7
```