

## How to Find the Mean, Median, and Mode of Grouped Data using the Graphing Calculator

In the table, the data indicate the heights, in inches, of 17 basketball players. For these data find:

a. the mode   b. the median   c. the mean

Height (inches)	Frequency (number)
77	2
76	0
75	5
74	3
73	4
72	2
71	1

- Solution**
- a. The greatest frequency, 5, occurs for the height of 75 inches. The mode, or height appearing most often, is 75.
- b. For 17 players, the median is the 9th number, so there are 8 heights greater than or equal to the median and 8 heights less than or equal to the median. Counting the frequencies going down, we have  $2 + 0 + 5 = 7$ . Since the frequency of the next interval is 3, the 8th, 9th, and 10th heights are in this interval, 74.

Counting the frequencies going up, we have  $1 + 2 + 4 = 7$ . Again, the frequency of the next interval is 3, and the 8th, 9th, and 10th heights are in this interval. The 9th height, the median, is 74.

- c. (1) Multiply each height by its corresponding frequency:

$$77 \times 2 = 154 \quad 76 \times 0 = 0 \quad 75 \times 5 = 375 \quad 74 \times 3 = 222$$

$$73 \times 4 = 292 \quad 72 \times 2 = 144 \quad 71 \times 1 = 71$$

- (2) Find the total of these products:

$$154 + 0 + 375 + 222 + 292 + 144 + 71 = 1,258$$

- (3) Divide this total, 1,258, by the total frequency, 17 to obtain the mean:

$$1258 \div 17 = 74$$

**Calculator Solution** Clear any previous data that may be stored in  $L_1$  and  $L_2$ . Enter the heights of the players into  $L_1$  and the frequencies into  $L_2$ . Then use 1-Var Stats from the STAT CALC menu to display information about the data. The screen will show the mean,  $\bar{x}$ . Press the down arrow key to display the median.

ENTER: **STAT** **↓** **ENTER** **2nd** **L1** **,** **2nd** **L2** **ENTER**

DISPLAY:

```
1-VAR STATS
x̄ = 74
ΣX = 1258
ΣX² = 93136
Sx = 1.658312395
σx = 1.608199333
n = 17
```

```
1-VAR STATS
n = 17
MINX = 71
Q1 = 73
MED = 74
Q3 = 75
MAXX = 77
```

Answers a. mode = 75   b. median = 74   c. mean = 74