

# MODE

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Mode is the frequency that is repeated the most. If the no frequency that is repeated the most then there will be no mode. If two frequencies are repeated the most, it is called bimodal.

## UNGROUPED DATA.

Q. The sizes of the first 8 dresses sold in the boutique are

8,6,4,10,14,10,12,10

Ans.

Since 10 is repeated the most.

Mode = 10.

## GROUPED DATA.

$$\text{Mode} = L + \frac{\Delta_1}{\Delta_1 + \Delta_2} \times i$$

L = lower limit of the modal class

$\Delta_1$  = difference between frequency of the modal class and the frequency of the pre modal class ( $f_1 - f_0$ )

$\Delta_2$  = difference between frequency of the modal class and the frequency of the post modal class ( $f_1 - f_2$ )

i = size of the modal class

$$\begin{aligned} M_o &= L + \frac{(f_1 - f_0)}{(f_1 - f_0) + (f_1 - f_2)} \times i \\ &= L + \frac{(f_1 - f_0)}{2f_1 - f_0 - f_2} \times i \end{aligned}$$

Q. The following table show the sales and the number of firms. Find the mode from the given data.

sales	58-60	60-62	62-64	64-66	66-68	68-70	70-72
f	12	18	25	30	10	3	2

Ans.

Sales	frequency
58-60	12
60-62	18
62-64	25
64-66	30
66-68	10
68-70	3
70-72	2

Modal class will be the class interval with maximum frequency.

Modal class = 64-66

$L = 64$

$i = 2$

$f_0 = 25$

$f_1 = 30$

$f_2 = 10$

$\Delta_1 = (f_1 - f_0) = 30 - 25 = 5$

$\Delta_2 = (f_1 - f_2) = 30 - 10 = 20$

$$\begin{aligned}
 M_o &= L + \frac{(f_1 - f_0)}{(f_1 - f_0) + (f_1 - f_2)} \times i \\
 &= 64 + \frac{5}{5 + 20} \times 2 \\
 &= 64.4
 \end{aligned}$$

Q1. Find the mode from the following data

27,84,15,92,54,85, 92

Q2. Find the mode from the given data.

x	20-25	25-30	30-35	35-40	40-45	45-50
f	32	21	15	45	5	30

### RELATION BETWEEN MEAN, MEDIAN AND MODE

$$\text{Mode} = 3\text{median} - 2\text{mean}$$

Q. In a moderately skewed distribution, mode = 32.1, mean = 35.4.  
Calculate median.

Ans.

$$\text{Mode} = 3\text{median} - 2\text{mean}$$

$$\Rightarrow 32.1 = 3\text{med} - 2 * 35.4$$

$$\Rightarrow 32.1 = 3\text{med} - 70.8$$

$$\Rightarrow \text{med} = 102.9/3$$

$$\Rightarrow \text{med} = 34.3$$

Q1. Find the mean when mode = 45 and median 20.

Q2. Find the mode when mean = 25.5 and median 22.2.