

## CHAPTER 14

# Statistics

**How to find median from ogives:**

**Method I:**

Locate  $\frac{N}{2}$  on the y – axis. From this point, draw a line parallel to the x – axis cutting the ogive at a point say 'P'. From this point 'P', draw a perpendicular to the x – axis. The 'x' coordinate point of intersection (Say 'm') of this perpendicular with the x – axis determines the median of the data.

**Method II:**

Draw both ogives on the same axes. The two ogives will intersect each other at a point say 'P'. From this point 'P', draw a perpendicular on the x – axis. The 'x' coordinate of the point at which this perpendicular cuts the x – axis determines the median of the data.

**Example:**

Draw the two ogives (Less than and more than) for the following frequency distribution of the weekly wages of number of workers.

| <b>Weekly wages<br/>(in Rs.)</b> | 0 – 20 | 20 – 40 | 40 – 60 | 60 – 80 | 80 – 100 |
|----------------------------------|--------|---------|---------|---------|----------|
| <b>No. of workers</b>            | 41     | 51      | 64      | 38      | 7        |

Hence, find the volume of median.



Sol.

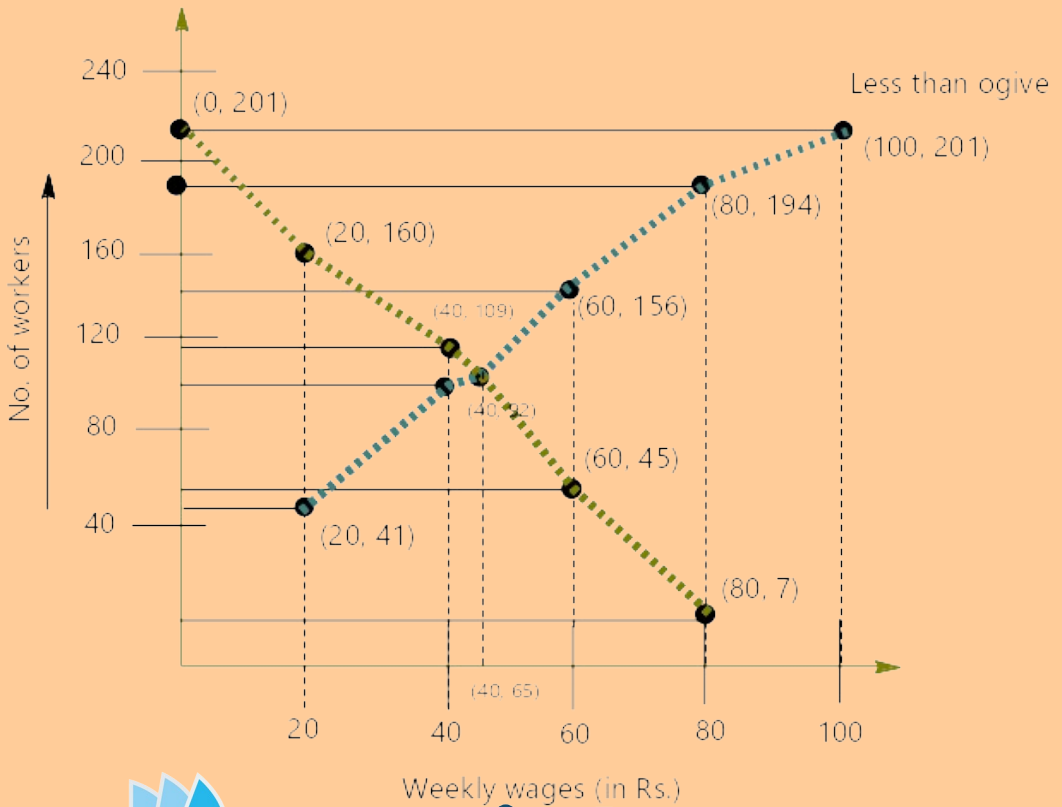
| Less than cumulative frequency distribution table |           |                      | More than cumulative frequency distribution table |           |                      |
|---------------------------------------------------|-----------|----------------------|---------------------------------------------------|-----------|----------------------|
| Weekly wages (in Rs.)                             | Frequency | Cumulative frequency | Weekly wages (in Rs.)                             | Frequency | Cumulative frequency |
| Less than 20                                      | 41        | 41                   | More than or Equal to 0                           | 41        | 201                  |
| Less than 40                                      | 51        | $41 + 51 = 92$       | More than or Equal to 20                          | 51        | $201 - 41 = 160$     |
| Less than 60                                      | 64        | $92 + 64 = 156$      | More than or Equal to 40                          | 64        | $160 - 51 = 109$     |
| Less than 80                                      | 38        | $156 + 38 = 194$     | More than or Equal to 60                          | 38        | $109 - 64 = 45$      |
| Less than 100                                     | 7         | $194 + 7 = 201$      | More than or Equal to 80                          | 7         | $45 - 38 = 7$        |

For drawing less than type curve, points are

(20, 41), (40, 92), (60, 156), (80, 194), (100, 201)

For drawing more than type curve, points are

(0, 201), (20, 160), (40, 109), (60, 45) and (80, 7)



**Brainbox**  
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