

that reflects the center of the data distribution.

It is a single value that attempts to describe a set of data by identifying the cen tral position within that set of data.

Along with the dispersion, central tendency is a branch of descriptive statistics



Example: Based on the grouped data below, find the median:

Time to treat to work	Frequency
NOLA-10	8
frol 11-20	14
Preview Page 10 Qi - 30 31 - 40	12
prev page 31-40	9
41 - 50	7

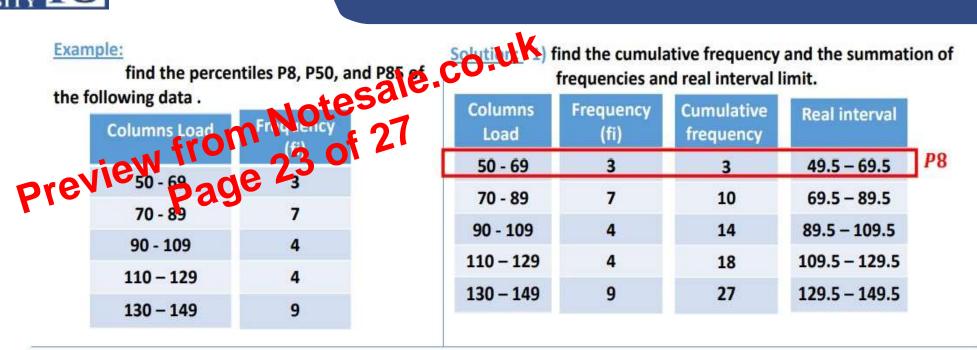
Solution:

1st Step: Construct the cumulative frequency distribution

Time to travel to work	Frequency	Cumulative Frequency	
1 - 10	8	8	
11 - 20	14	22	
21 - 30	12	34	
31 - 40	9	43	
41 - 50	7	50	

 $\frac{n}{2} = \frac{50}{2} = 25 \quad \longrightarrow \quad \text{class median is the 3^{rd} class}$ So, F = 22,  $f_m = 12$ ,  $L_m = 20.5$  and i = 10





2) find the arrangement number of percentiles to find percentiles interval P8.

p8 = (8/100) x n = (8/100) x 27 = 2.16

The interval of percentiles number 8 is have the cumulative frequency = 3

$$P = a + \left[\frac{p - n_1}{f_p}\right].C$$

a = the real lower limit of percentiles interval= 49.5 $n_1$  = the cumulative frequency of the previous interval of the percentiles interval= 0 $f_p$  = the frequency of percentiles interval= 3C = the length of percentiles interval= 20



		Columns Load	Frector U	Cumulative frequency	Real interval	
Preview from Page		050 - 69	3	3	49.5 - 69.5	P8
	roi	57039 4	7	10	69.5 - 89.5	
	age t	90 - 109	4	14	89.5 - 109.5	P50
		110 - 129	4	18	109.5 - 129.5	
		130 - 149	9	27	129.5 - 149.5	P85

Example:

find the percentiles arrangement of 115 in the above data .

$$P = a + \left[\frac{p - n_1}{f_p}\right] \cdot C$$

$$a = \text{the real lower limit of percentiles interval} = 109.5$$

$$n_1 = \text{the cumulative frequency of the previous interval of the percentiles interval} = 14$$

$$f_p = \text{the frequency of percentiles interval} = X$$

$$C = \text{the length of percentiles interval} = 20$$

$$115 = 109.5 + \left[\frac{X - 14}{4}\right] \cdot 20 \quad then, X = 15.1$$
  
then, percentiles arrangement =  $\frac{15.1}{27} \times 100\% = 56\%$