MEASURE OF DISPERSION

RANGE

- RANGE- in order to calculate the range we subtract the largest value (L) from the smallest value (S).

  Range = L – S

- Co-efficient of range- $\frac{L-S}{L+S}$

Q) Calculate the range and the co-efficient of range from the following table.

Day	Price
Mon	200
Tues	210
Wed	208
Thurs	160
Fri	220
Sat	250

Ans)

Range = L-S

=> 250-160

=> 90

Co-efficient of range= $\frac{L-S}{L+S}$

= $\frac{250-160}{250+160}$

= $\frac{90}{410}$

= .219

The above example was for a discrete variable, if you have a continuous grouped data then we calculate range from the class interval. The range is solved in the following way.

Q) find the range and co-efficient of range from the following table

Profit	Frequency
10-20	8
20-30	10
30-40	12
40-50	8
50-60	4

Ans)

Range = L – S = 60 – 10 = 50

Co-efficient of range = $\frac{L-S}{L+S}$

= $\frac{60-10}{60+10}$

= $\frac{50}{70}$

= .71

When the grouped data is discontinuous then we have to first convert it into continuous data. In order to do that we have to add and subtract half of the difference between the class intervals to the upper limit and lower limit of the class interval

Q) find the range and coefficient of range

Age	Frequency
10-19	11
20-29	27
30-39	18
40-49	15
50-59	43
60-69	8

Ans)

Here we see that the difference between the class interval is 1

D = 20-19 = 1.

Next we need to add and subtract half of the difference that is .5

D/2 = 1/2 = .5

Age		Frequency
10-19	9.5-19.5	11
20-29	19.5-29.5	27
30-39	29.5-39.5	18
40-49	39.5-49.5	15
50-59	49.5-59.5	43
60-69	59.5- 69.5	8

Range = L – S = 69.5 – 9.5 = 60

Co-efficient of range = $\frac{L-S}{L+S}$

$= \frac{69.5 - 9.5}{69.5 + 9.5}$

$= \frac{60}{79}$

= .76

Q1. Calculate the range and the co-efficient of range from the following

120,320,275,263,649,134

Q2. Find the range and coefficient of range

Age	Frequency
10-19	18
20-29	21
30-39	15
40-49	1
50-59	23
60-69	34