T6.1 – Grouped & Cumulative data

IB Math SL1 - Santowski

Example to start with

- Given the following data set for all of my shot put athletes:
- (a) Determine the mean, median, mode, IQR, range, quartiles, IQR from the data list
- (b) organize into intervals of 0.25 m
- (c) Determine the frequency in each interval
- (d) prepare a histograph
- (e) Prepare a cumulative frequency distribution
- (f) use the CFD to determine the median. Compare to Q(a)

8.74 m	10.39 m	8.79 m	9.35
8.94 m	10.86 m	9.39 m	8.53
9.66 m	10.94 m	9.94 m	9.96
10.01 m	9.00 m	10.97 m	10.05
10.01 m	9.15 m	9.72 m	9.30
8.43 m	9.35 m	8.49 m	10.20
10.25 m	9.35 m	9.63 m	9.59
10.14 m	8.45 m	9.83 m	8.56
9.04 m	8.85 m	9.49 m	8.98
9.30 m	8.95 m	8.82 m	9.52
8.69 m	9.10 m	9.24 m	10.93
8.85 m	10.20 m	9.13 m	8.47

Example to start with

- (a) Determine the mean, median, mode, IQR, range, quartiles, IQR from the data list

mean =	9.448542
median =	9.35
mode =	9.35
Q1 =	8.9175
Q2 =	9.35
Q3 =	9.9725
Q4 =	10.97
Range =	8.43 - 10.97
IQR =	8.9175 - 9.9725

8.74 m	10.39 m	8.79 m	9.35
8.94 m	10.86 m	9.39 m	8.53
9.66 m	10.94 m	9.94 m	9.96
10.01 m	9.00 m	10.97 m	10.05
10.01 m	9.15 m	9.72 m	9.30
8.43 m	9.35 m	8.49 m	10.20
10.25 m	9.35 m	9.63 m	9.59
10.14 m	8.45 m	9.83 m	8.56
9.04 m	8.85 m	9.49 m	8.98
9.30 m	8.95 m	8.82 m	9.52
8.69 m	9.10 m	9.24 m	10.93
8.85 m	10.20 m	9.13 m	8.47

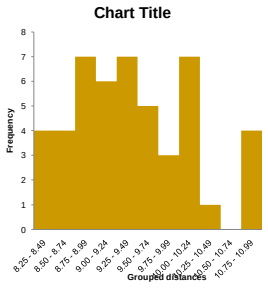
Example to start with

- (b) organize into intervals of 0.25 m
- (c) Determine the frequency in each interval

Grouped Data	Frequency
8.25 - 8.49	4
8.50 - 8.74	4
8.75 - 8.99	7
9.00 - 9.24	6
9.25 - 9.49	7
9.50 - 9.74	5
9.75 - 9.99	3
10.00 - 10.24	7
10.25 - 10.49	1
10.50 - 10.74	0
10.75 - 10.99	4

Example to start with

- (d) Histograph



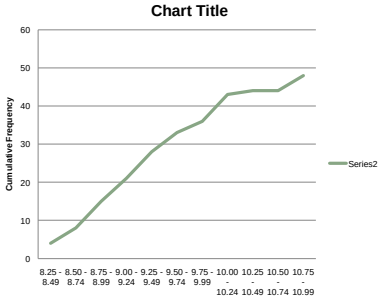
Example to start with

- (e) Cumulative Frequency Distribution

Grouped Data	Frequency	Cumulative Frequency
8.25 - 8.49	4	4
8.50 - 8.74	4	8
8.75 - 8.99	7	15
9.00 - 9.24	6	21
9.25 - 9.49	7	28
9.50 - 9.74	5	33
9.75 - 9.99	3	36
10.00 - 10.24	7	43
10.25 - 10.49	1	44
10.50 - 10.74	0	44
10.75 - 10.99	4	48

Example to start with

- (e) Cumulative Frequency Distribution as a graph



Example to Start with

- (1) Determine the mean from the grouped data
- (2) Determine the mean from the CFD graph
- (3) compare all three means
- Why would they be different? Why would they be the same??

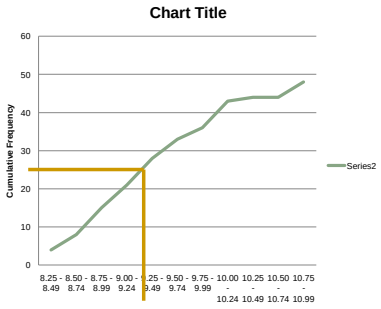
Example to start with

- (1) Determine the mean from the grouped data
- 9.4325 m

Grouped Data	Frequency	Cumulative Frequency
8.25 - 8.49	4	8.37 x 4
8.50 - 8.74	4	8.62 x 4
8.75 - 8.99	7	8.87 x 7
9.00 - 9.24	6	9.12 x 6
9.25 - 9.49	7	9.37 x 7
9.50 - 9.74	5	9.62 x 5
9.75 - 9.99	3	9.87 x 3
10.00 - 10.24	7	10.12 x 7
10.25 - 10.49	1	10.37 x 1
10.50 - 10.74	0	0
10.75 - 10.99	4	10.87 x 4
452.76/48 = 9.4325		

Example to start with

- Determine the mean from the CFD graph
- A bit harder ….



Class work

- S18B.3, Q3
- S18C, Q3
- S18D.2, Q8

Homework

- HW
- Ex 18B.3 #5, 6;
- Ex 18C #4,6;
- Ex 18D.2 #7 - 10