Measures of Position for Grouped Data: Quartiles

$$Q_k = lb + \left[\frac{\frac{kN}{4} - cf_b}{f_{Q_k}} \right] i$$

where: lb = lower boundary of the Q_k class
f_{Q_k} = frequency of the Q_k class
cf_b = cumulative frequency of the class before the Q_k class
k = n_{th} quartile, where $n = 1$, 2, and 3
i = size of class interval
N = total frequency

Practice Exercises

Calculate the given fractiles for each frequency distribution table.

Mid-year Test Scores of Students in Math

Score	Frequency
41 – 45	1
36 – 40	8
31 – 35	8
26 – 30	14
21 – 25	7
16 – 20	2

Compute the following.

1. Q_2 3. Q_1
2. Q_3 4. IQR

Weights of 8–Tesla Students

Weight in kg	Frequency
40 – 44	1
45 – 49	14
50 – 54	15
55 – 59	21
60 – 64	14
65 – 69	10
70 – 74	4
75 – 79	1

Compute the following.

5. Q_2 7. Q_1
6. Q_3 8. IQR

Problem Set

Calculate the given fractiles for each frequency distribution table.

Scores of 10–Tesla Students in the 4^{th} Periodic Test in Mathematics

Score	Frequency
46 – 50	2
41 – 45	9
36 – 40	13
31 – 35	11
26 – 30	10
21 – 25	5

Compute the following.

1. Q_2 3. Q_1
2. Q_3 4. IQR

Number of Mistakes Made by 50 Students in Factoring Quadratic Equations

Number of Mistakes	Frequency
18 – 20	2
15 – 17	5
12 – 14	6
9 – 11	10
6 – 8	15
3 – 5	8
0 – 2	4

Compute the following.

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