
Interpolation Questions- Edexcel Past Exam Questions

1. The following table summarises the distances, to the nearest km, that 134 examiners travelled to attend a meeting in London.

Distance (km)	Number of examiners
41–45	4
46–50	19
51–60	53
61–70	37
71–90	15
91–150	6

Use interpolation to estimate the median Q_2 , the lower quartile Q_1 , and the upper quartile Q_3 of these data.

(3)

June 05 Q2

2. Summarised below are the distances, to the nearest mile, travelled to work by a random sample of 120 commuters.

Distance (to the nearest mile)	Number of commuters
0 – 9	10
10 – 19	19
20 – 29	43
30 – 39	25
40 – 49	8
50 – 59	6
60 – 69	5
70 – 79	3
80 – 89	1

For this distribution,

- (b) use linear interpolation to estimate its median.

(2)

Jan 07 Q4

3. A researcher measured the foot lengths of a random sample of 120 ten-year-old children. The lengths are summarised in the table below.

Foot length, l , (cm)	Number of children
$10 \leq l < 12$	5
$12 \leq l < 17$	53
$17 \leq l < 19$	29
$19 \leq l < 21$	15
$21 \leq l < 23$	11
$23 \leq l < 25$	7

- (a) Use interpolation to estimate the median of this distribution.

(2)

June 09 Q4

4. The birth weights, in kg, of 1500 babies are summarised in the table below.

Weight (kg)	Midpoint, x kg	Frequency, f
0.0 – 1.0	0.50	1
1.0 – 2.0	1.50	6
2.0 – 2.5	2.25	60
2.5 – 3.0		280
3.0 – 3.5	3.25	820
3.5 – 4.0	3.75	320
4.0 – 5.0	4.50	10
5.0 – 6.0		3

[You may use $\sum fx = 4841$ and $\sum fx^2 = 15\,889.5$]

- (a) Write down the missing midpoints in the table above. (2)
- (b) Calculate an estimate of the mean birth weight. (2)
- (d) Use interpolation to estimate the median birth weight. (2)

Jan 10 Q3