

Averages and measures of spread – Answers

Averages and Measures of Spread – Calculating from Individual Data Items

- 1) (a) Median = 19.5 IQR = $27.5 - 16.5 = 11$
(b) Median = 47 IQR = $77.5 - 26.5 = 51$ (or by Edexcel method, $73 - 27 = 46$)
(c) Median = 33 IQR = $37 - 29 = 8$
- 2) (a) Mean = 5.79cm Median = 5.65cm
(b) Mean = 31.5 minutes Median = 31 minutes
(c) Mean = 35.2 minutes Median = 33 minutes
- 3) The median, because it is not affected by the outlier of 67 minutes, whereas the mean is affected.
- 4) (a) Range = $7.1 - 4.6 = 2.5\text{cm}$ IQR = $6.15 - 5.4 = 0.75\text{cm}$
(b) Range = $42 - 23 = 19\text{ min}$ IQR = $35 - 28 = 7\text{ min}$
(c) Range = $67 - 27 = 40\text{ min}$ IQR = $36.5 - 31 = 5.5\text{ min}$ (or by Edexcel method, $36 - 31 = 5\text{ min}$)
- 5) The leaves from tree A were on average smaller than those from tree B (because the median is smaller), but varied more in size (because the IQR is greater).
- 6) On average the girls found the second jigsaw easier (because the median time taken was less). But there was more variation in how difficult they found it (because the IQR of the second jigsaw is greater).
- 7) Class B did better on the test on average. But there was much more variation in class A – some of them may have done better than anybody in class B, while some did very poorly.
- 8) Comparing the range does not give a good picture because of the one outlier of 67 minutes (maybe this boy wasn't really trying). If this one value is removed, we can see that there was less variation in the boy's times than the girl's times. So the IQR gives a better picture.

Frequency tables - Finding the mean and median

- | | |
|--|--|
| 1) (a) Mean = 3.5 eggs/day | (b) Median = 3 eggs/day |
| 2) (a) Mean = 5.15 spikes/leaf | (b) Median = 5.5 spikes/leaf |
| 3) (a) Mean = 3.59 pairs/person | (b) Median = 3 pairs of shoes/person |
| 4) (a) Median = 3.14 dandelions/m ² | (b) Median = 3.5 dandelions/m ² |

Mean of Grouped Frequency Distribution

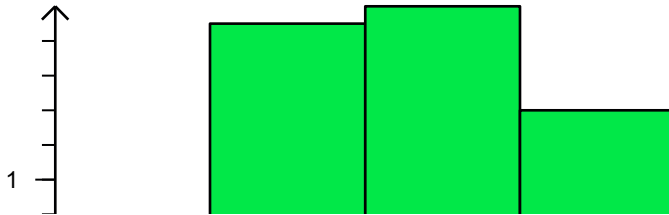
- 1) Mean length = 7.75cm
2) Mean wage = £15717
3) Farm A: 71.3g Farm B: 71.0g

More frequency distribution questions

1) (a) Mean = 132g

(b)

(c) Freq Density
130g

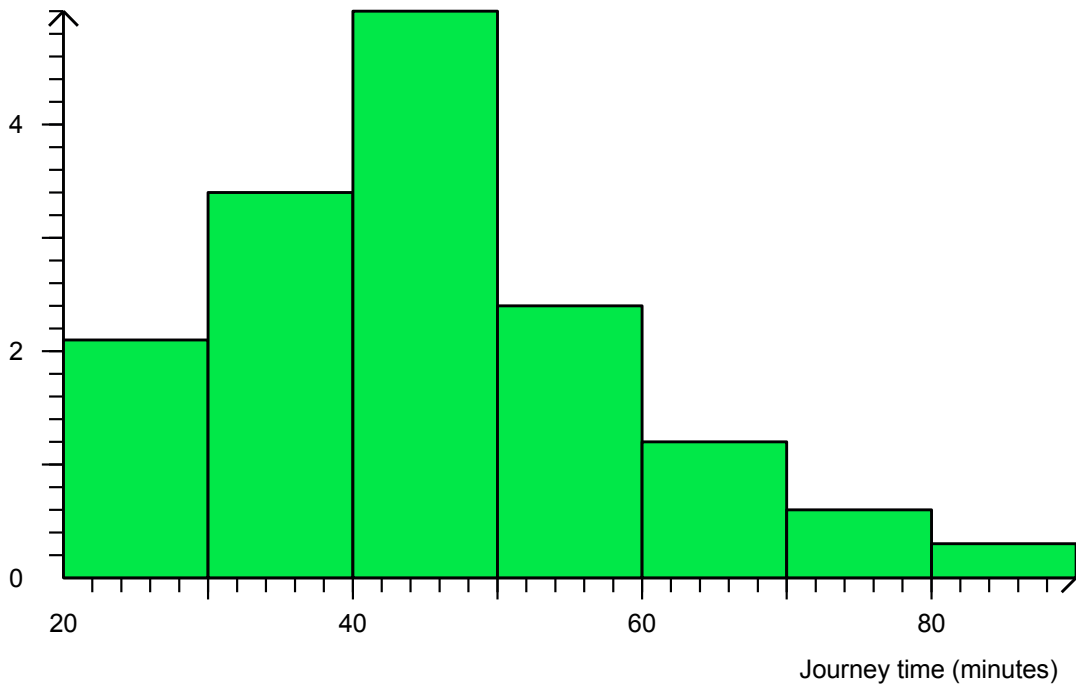


2) (a)

45.1
minutes

(b)

(c) Freq Density
44



minutes

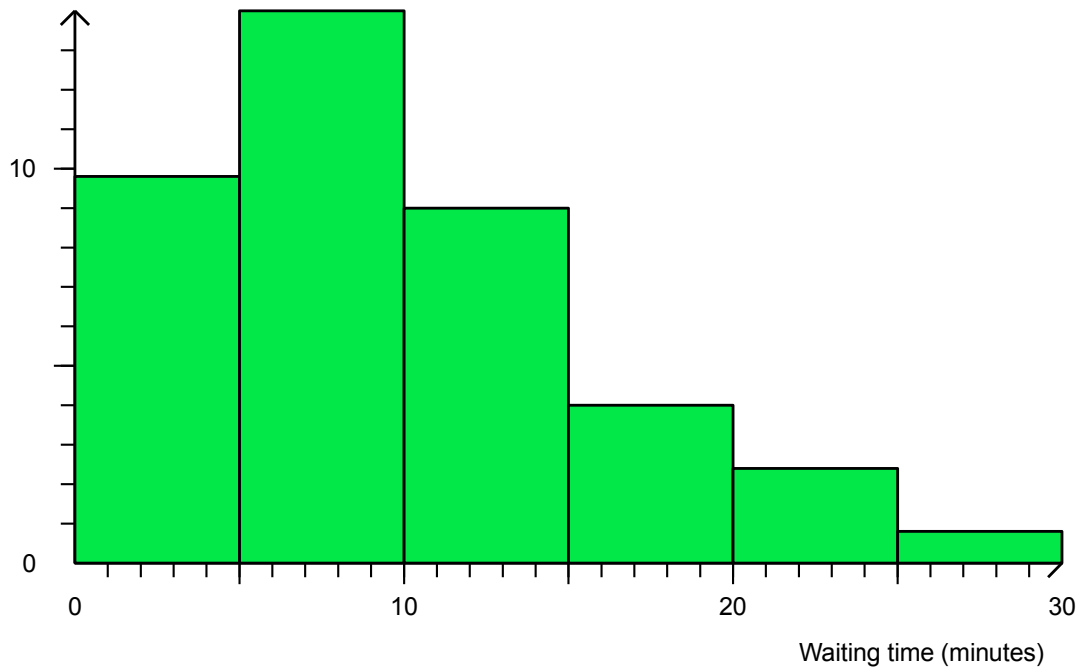
(d) $\frac{38}{150}$ or 0.253

(e) 14%

(f) 75 minutes

3) (a)
 (b)
 45.5%
 (c)
 19

Freq Density

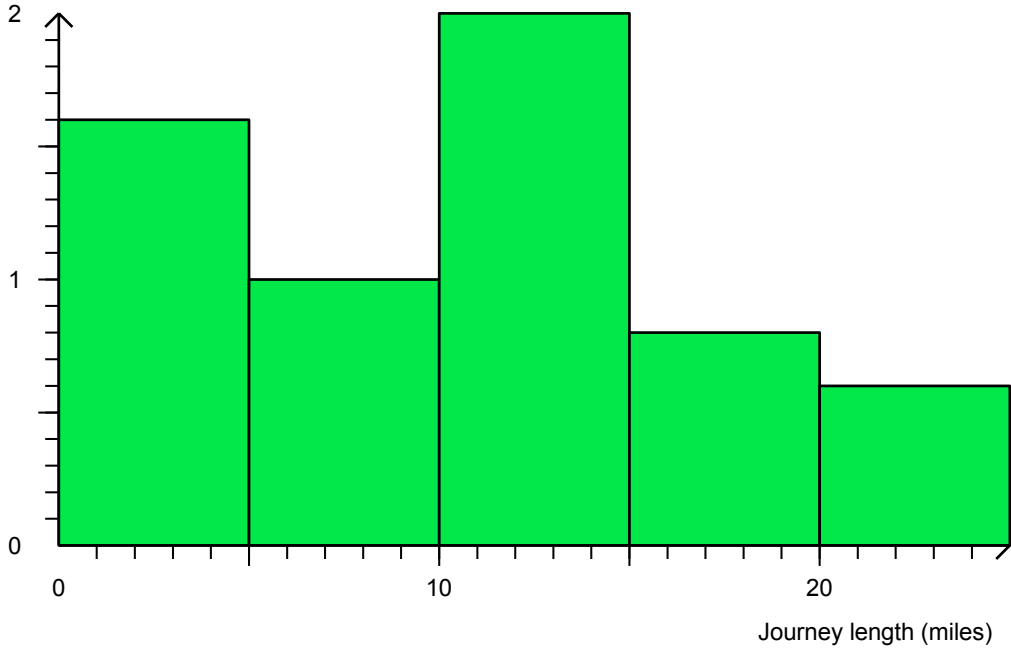


minutes
 (d) 0.685

4) (a) Mean = 10.4 miles Median = 11.3 miles
 (b)

Journey length (miles)	0- 5-	10-	15-	20-25	
Frequency	8	5	10	4	3

Freq Density



(c) Mean = 10.67 miles Median = 11 miles; slight loss of accuracy compared to (a)