

Algebra 1 - Data Distributions and Summary Statistics - Test Answer Key

Common Core S-ID.A.1, S-ID.A.2, S-ID.A.3 · maths-pdf.fr/en/

Grade the data distributions test with this key. Every question lists the points available and how to split them between method and result. Students who show clear work should receive partial credit, even if the final answer is not correct. The test totals 20 points in all.

Algebra 1 · Common Core State Standards: **S-ID.A.1, S-ID.A.2, S-ID.A.3**

Question 1 - Mean and median [2 pts]

Sum 84, so the mean is $\frac{84}{6} = 14$.

Ordered: 9,12,12,14,17,20; the median is $\frac{12+14}{2} = 13$.

Mean 14; median 13

Scoring: 1 point for each correct value.

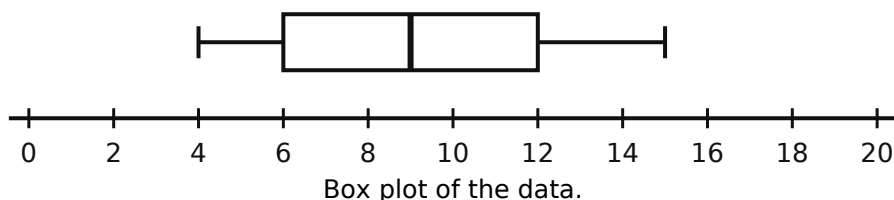
Question 2 - Five-number summary [2 pts]

The median is 9. Lower half 4,6,7: Q1 = 6. Upper half 10,12,15: Q3 = 12.

4, 6, 9, 12, 15

Scoring: 1 point for the median and quartiles; 1 point for the minimum and maximum.

Question 3 - Draw a box plot [2 pts]



Box from 6 to 12 with a line at 9; whiskers to 4 and 15.

Scoring: 1 point for the box and median; 1 point for the whiskers.

Question 4 - Outlier test [2 pts]

$Q1 = 22.5$, $Q3 = 27.5$, $IQR = 5$. Upper fence: $27.5 + 1.5(5) = 35$.

60 is above 35, so it is an outlier

Scoring: 1 point for the IQR and fence; 1 point for the conclusion.

Question 5 - Read a histogram [2 pts]

Interval	0-5	5-10	10-15	15-20
Count	4	9	6	1

Counts by interval.

$4 + 9 = 13$ students. $\frac{13}{20} = 65\%$.

13 students; 65%

Scoring: 1 point for the count; 1 point for the percent.

Question 6 - Standard deviation [2 pts]

Mean 5. Squared deviations sum to 32. Variance $\frac{32}{8} = 4$.

$$\sigma = 2$$

Scoring: 1 point for the mean and squared deviations; 1 point for the standard deviation.

Question 7 - Compare two groups [3 pts]

a) A: $12 - 8 = 4$. B: $15 - 5 = 10$.

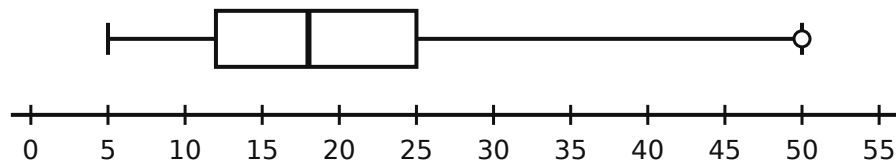
b) Group B has the larger standard deviation.

c) The values in B vary more, while the values in A are closer to the mean of 10.

Ranges 4 and 10; B more spread out

Scoring: 1 point per part.

Question 8 - Commute times [3 pts]



- a) The median is 18 minutes.
- b) $25 - 12 = 13$.
- c) Upper fence: $25 + 1.5(13) = 44.5$. Since 50 is greater than 44.5, it is an outlier.

18; 13; yes

Scoring: 1 point per part.

Question 9 - Choose a measure [2 pts]

Mean: $\frac{372}{7} \approx 53.1$. Median: 38.

The salary 150 is an outlier that pulls the mean up, so the median describes a typical salary better.

Mean about \$53,100; median \$38,000; use the median

Scoring: 1 point for both values; 1 point for the choice with an explanation.

Total

20 points