

Algebra 1
Data Center & Spread | Algebra 1 | 2-Topic Bundle

2-topic bundle | 192 problems | Four activity formats

01 Mean, Median, and Mode

View individual product and its full preview

02 Range, Quartiles, and IQR

View individual product and its full preview

In every topic

Answer Bank Challenge	24 tasks
Grid Rounds	24 tasks
Match & Move	24 cards
Error Analysis & Strategy	24 tasks
Quick Answer Key and Full Worked Solutions	included
Teacher / Parent Use Guide and Terms of Use	included

Product previews

The following preview pages show the cover, all four activity formats, and worked examples for each included resource, in the listed order.

16 PDFs and 2 READMEs; 140 buyer PDF pages across the 2 products.

Preview pages are not included in the buyer page count. Check the list against resources you already own.

This is a fixed collection of the listed products. Purchase includes the existing individual resource files. To open a product's online preview, follow its title link and select View Preview.

Algebra 1
Mean, Median, and Mode

Mean, Median, and Mode | A1-U10-P01

96 problems · Four activity formats

01	Answer Bank Challenge	24 tasks
02	Grid Rounds	24 tasks
03	Match & Move	24 cards
04	Error Analysis & Strategy	24 tasks
05	Quick Answer Key	96 answers
06	Full Worked Solutions	96 solutions
07	Teacher / Parent Use Guide	included
08	Terms of Use & License	included

Topic focus
Across 96 tasks this topic asks for count, middle position(s), middle value(s), median, and unit, weighted total, count, exact mean, and unit, chosen measure, data-based evidence, and purpose-based justification, construction or impossibility proof with sum, rank, and frequency verification, identified misconception, corrected computation, and corrected claim and before/after totals, counts, mean, median, modes, and change classification.

8 PDFs and a README; 71 buyer pages.

Algebra 1

Mean, Median,
and Mode

Name: _____ Date: _____ Class: _____

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

Use the exact frequency table of points to calculate the mean. Count repeated observations rather than averaging only the distinct values. All frequencies are one. Use the complete requested calculation as the matching response: total/count/mean, ordered middle positions and median, or target total and missing value as applicable. Keep the original units and feasibility checks.

value	frequency
2	1
5	1
8	1

Bank label: _____

Find the mean of the points data represented by the table, and show the weighted total and total count that justify it. The four observations total 24. Use the complete requested calculation as the matching response: total/count/mean, ordered middle positions and median, or target total and missing value as applicable. Keep the original units and feasibility checks.

value	frequency
4	1
6	2
8	1

Bank label: _____

Use the exact frequency table of books to calculate the mean. Count repeated observations rather than averaging only the distinct values. There are three observations, not two. Use the complete requested calculation as the matching response: total/count/mean, ordered middle positions and median, or target total and missing value as applicable. Keep the original units and feasibility checks.

value	frequency
3	2
7	1

Bank label: _____

Compute the exact mean from this value-frequency table and report it in degrees. Include every value-times-frequency contribution. Opposite contributions cancel. Use the complete requested calculation as the matching response: total/count/mean, ordered middle positions and median, or target total and missing value as applicable. Keep the original units and feasibility checks.

value	frequency
-2	1
0	1
2	1

Bank label: _____

Algebra 1

Mean, Median,
and Mode

Name: _____ Date: _____ Class: _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

Determine the median of the exact account units frequency table. First order values and use the total count to locate the middle position or positions. The middle values straddle zero.

value	frequency
-7	1
-1	2
3	2
8	1

Determine the median of the exact dollars frequency table. First order values and use the total count to locate the middle position or positions. The most frequent value alone does not determine an even-sample median.

value	frequency
100	4
2	5
3	1

Determine the median of the exact seconds frequency table. First order values and use the total count to locate the middle position or positions. Keep hundredths exact while ordering.

value	frequency
$\frac{101}{100}$	2
$\frac{99}{100}$	1
$\frac{21}{20}$	2
1	1

Determine the median of the exact points frequency table. First order values and use the total count to locate the middle position or positions. For fourteen observations, positions 7 and 8 must be traced through sorted cumulative counts.

value	frequency
7	6
1	3
4	1
10	4

Algebra 1

Mean, Median,
and Mode

Name: _____ Date: _____ Class: _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: count: 7; median: 3; middle positions: 4; middle values: 3; unit: points

Determine the median of the exact hours frequency table. First order values and use the total count to locate the middle position or positions. The fourth and fifth positions fall in the same value row. Use the complete requested calculation as the matching response: total/count/mean, ordered middle positions and median, or target total and missing value as applicable. Keep the original units and feasibility checks.

value	frequency
1	3
8	2
4	3

Your response: _____

Incoming: count: 3; median: 0; middle positions: 2; middle values: 0; unit: degrees

Determine the median of the exact meters frequency table. First order values and use the total count to locate the middle position or positions. Exact decimal order is 1.5, 2.5, 3.5. Use the complete requested calculation as the matching response: total/count/mean, ordered middle positions and median, or target total and missing value as applicable. Keep the original units and feasibility checks.

value	frequency
$\frac{5}{2}$	1
$\frac{3}{2}$	1
$\frac{7}{2}$	1

Your response: _____

Incoming: count: 15; mean: $\frac{23}{15}$; unit: errors; weighted total: 23

Compute the exact mean from this value-frequency table and report it in elevation units. Include every value-times-frequency contribution. Deviation arithmetic around -100 must restore the negative baseline. Use the complete requested calculation as the matching response: total/count/mean, ordered middle positions and median, or target total and missing value as applicable. Keep the original units and feasibility checks.

value	frequency
-102	2
-100	5
-93	1

Your response: _____

Incoming: count: 13; mean: $\frac{13008}{13}$; unit: grams; weighted total: 13008

Use the exact frequency table of meters to calculate the mean. Count repeated observations rather than averaging only the distinct values. Exact cancellation is easier in fourths. Use the complete requested calculation as the matching response: total/count/mean, ordered middle positions and median, or target total and missing value as applicable. Keep the original units and feasibility checks.

value	frequency
$-\frac{7}{4}$	4
$\frac{1}{2}$	3
$\frac{9}{4}$	2

Your response: _____

Algebra 1

Mean, Median, and Mode

Name: _____ Date: _____ Class: _____

Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

Mode convention: no mode when all distinct or all observed frequencies tie The ordered-data summary begins from 2, 3, 4, 5, 6 points. Apply this edit: add 20. Recompute the mean, median, and mode set, then state exactly which summaries change. The new extreme affects the total and even-sample middle positions. Compare the complete before-and-after center summaries under the original edit. Explain which mean, median and mode statements change and which remain true, using totals, ordered ranks and frequencies separately.

The ordered-data summary begins from 2, 4, 4, 6, 10 minutes. Apply this edit: remove one occurrence of 10. Recompute the mean, median, and mode set, then state exactly which summaries change. Remove only the single largest observation. Compare the complete before-and-after center summaries under the original edit. Explain which mean, median and mode statements change and which remain true, using totals, ordered ranks and frequencies separately.

Mode convention: no mode when all distinct or all observed frequencies tie The ordered-data summary begins from 1, 2, 3, 4, 5 points. Apply this edit: replace one 1 with 5. Recompute the mean, median, and mode set, then state exactly which summaries change. The replacement changes frequency and total while the middle position stays central. Compare the complete before-and-after center summaries under the original edit. Explain which mean, median and mode statements change and which remain true, using totals, ordered ranks and frequencies separately.

Mode convention: no mode when all distinct or all observed frequencies tie The ordered-data summary begins from 2, 4, 6, 8, 10, 12 points. Apply this edit: add 0. Recompute the mean, median, and mode set, then state exactly which summaries change. The sample changes from even to odd. Compare the complete before-and-after center summaries under the original edit. Explain which mean, median and mode statements change and which remain true, using totals, ordered ranks and frequencies separately.

Mean, Median, and Mode

Full Worked Solutions - excerpt

Worked example

Problem. Order the values before selecting a middle position. Data: 9, 1, 8, 2, 3. A student claims: The median is the displayed middle entry, 8. Diagnose the exact mistake and replace the claim with a correct central-summary statement.

Answer. correction: the median is 3.; diagnosis: the middle entry was selected before sorting

Explanation and check.

The ordered data are 1, 2, 3, 8, 9, whose third value is 3. Therefore the median is 3.

Worked example

Problem. Inspect every value tied at the greatest frequency. Data: 2, 2, 5, 5, 8. A student claims: The mode is 2. Diagnose the exact mistake and replace the claim with a correct central-summary statement.

Answer. correction: the mode set is $\{2, 5\}$.; diagnosis: a second value tied for greatest frequency was omitted

Explanation and check.

Both 2 and 5 occur twice, while 8 occurs once. Therefore the mode set is $\{2, 5\}$.

Algebra 1
Range, Quartiles, and IQR

Range, Quartiles, and IQR | A1-U10-P02

96 problems · Four activity formats

01	Answer Bank Challenge	24 tasks
02	Grid Rounds	24 tasks
03	Match & Move	24 cards
04	Error Analysis & Strategy	24 tasks
05	Quick Answer Key	96 answers
06	Full Worked Solutions	96 solutions
07	Teacher / Parent Use Guide	included
08	Terms of Use & License	included

Topic focus

Across 96 tasks this topic asks for before/after ordered data, range, quartiles, IQR, and change classification, observed minimum, observed maximum, range, and unit, admissible ordered dataset with range and quartile verification, or impossibility proof, ordered data, halves, Q1, Q3, IQR, unit, and stated convention, cumulative intervals, observed endpoints, range, Q1, Q3, IQR, and unit and error diagnosis, corrected rank or endpoint calculation, and corrected spread statement.

8 PDFs and a README; 69 buyer pages.

Algebra 1

Range, Quartiles,
and IQR

Name: _____ Date: _____ Class: _____

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

The display order is not numerical order. The exact value-frequency table records points. Identify the smallest and largest observed values and calculate the range with its unit. Use maximum minus minimum, not last minus first. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention.

Value	Frequency
8	1
3	1
11	1

Bank label: _____

The support crosses zero. The exact value-frequency table records degrees. Identify the smallest and largest observed values and calculate the range with its unit. Subtracting a negative endpoint increases the difference. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention.

Value	Frequency
-4	1
2	1
7	1

Bank label: _____

The minimum occurs more than once. The exact value-frequency table records hours. Identify the smallest and largest observed values and calculate the range with its unit. Multiplicity does not change the endpoint distance. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention.

Value	Frequency
2	3
5	1
9	1

Bank label: _____

The maximum has the greatest frequency. The exact value-frequency table records tokens. Identify the smallest and largest observed values and calculate the range with its unit. Range depends on its value, not how often it occurs. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention.

Value	Frequency
1	1
6	2
10	4

Bank label: _____

Algebra 1

Range, Quartiles,
and IQR

Name: _____ Date: _____ Class: _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

Both endpoints repeat with different multiplicities. Order these exact observations measured in ratings: 1, 1, 3, 5, 7, 9, 9, 9. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. Use half positions rather than endpoint counts alone. 	A single extreme appears at each end. Order these exact observations measured in units: -100, 2, 3, 4, 5, 6, 7, 100. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. The quartiles come from interior half positions.
Every observed value occurs as a pair. Order these exact observations measured in scores: 1, 1, 3, 3, 5, 5, 7, 7, 9, 9. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. The half boundary cuts between the two copies of 5. 	Each half has its own plateau. Order these exact observations measured in minutes: 2, 2, 2, 4, 6, 8, 8, 8. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. The central split lies between 4 and 6.
Two distant extremes bookend a tight center. Order these exact observations measured in units: -1000, 1, 2, 3, 4, 5, 6, 7, 1000. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. Trace half positions rather than averaging endpoints. 	Several frequency blocks meet quartile boundaries. Order these exact observations measured in ratings: 1, 1, 1, 2, 2, 4, 4, 4, 4, 9, 9, 12. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. Count ordered positions inside each repeated block.

Algebra 1

Range, Quartiles,
and IQR

Name: _____ Date: _____ Class: _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: maximum: $\frac{5}{2}$; minimum: $\frac{1}{2}$; range: 2; unit: meters The five values are deliberately unsorted. Order these exact observations measured in points: 9, 1, 5, 3, 7. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. Remove the third value before finding the two half-medians. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention. Your response: _____	Incoming: convention: exclude overall median for odd sample size; iqr: 11; q1: -4; q3: 7; unit: change units Every observation is below zero. Order these exact observations measured in degrees: -12, -10, -8, -6, -4, -2. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. $Q3$ can be negative while IQR remains nonnegative. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention. Your response: _____
Incoming: convention: exclude overall median for odd sample size; iqr: 6; q1: 4; q3: 10; unit: minutes Seven observations leave three values in each half after exclusion. Order these exact observations measured in pages: 14, 2, 8, 4, 12, 6, 10. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. The overall median belongs to neither half. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention. Your response: _____	Incoming: convention: exclude overall median for odd sample size; iqr: 4; q1: $\frac{5}{2}$; q3: $\frac{13}{2}$; unit: ratings After removing the fifth ordered value, each half has four values. Order these exact observations measured in seconds: 18, 2, 14, 6, 10, 4, 16, 8, 12. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. Average the two middle values within each half. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention. Your response: _____
Incoming: convention: exclude overall median for odd sample size; iqr: 7; q1: $\frac{5}{2}$; q3: $\frac{19}{2}$; unit: minutes Eleven values leave five in each half. Order these exact observations measured in pages: 0, 1, 2, 3, 4, 5, 7, 9, 12, 16, 21. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. $Q1$ and $Q3$ are the third positions of their halves. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention. Your response: _____	Incoming: convention: exclude overall median for odd sample size; iqr: 11; q1: 1; q3: 12; unit: hours Three copies of the median value occupy central positions. Order these exact observations measured in points: 1, 2, 4, 6, 6, 6, 8, 10, 12. Using the median-of-halves convention that excludes the overall median when n is odd, find $Q1$, $Q3$, and IQR. Exclude the fifth position only; the other copies stay in their halves. Match the complete originally requested extrema/quartile/spread response with units and any transformation order statement. Keep the declared median-of-halves convention. Your response: _____

Algebra 1

Range, Quartiles,
and IQR

Name: _____ Date: _____ Class: _____

Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

Nine observations are compressed into five rows. Use the exact frequency table of points and the convention that excludes the overall median when n is odd. Locate quartile ranks by cumulative frequency, then report the range, $Q1$, $Q3$, and IQR. Exclude ordered position 5 before splitting. Choose between expanding the frequency table into ordered observations and locating the needed ranks with cumulative frequencies. Justify the efficient choice for these counts, then show the original required rank evidence and apply the stated quartile convention.

Value	Frequency
1	2
3	2
5	1
7	2
9	2

Ten observations occupy three frequency blocks. Use the exact frequency table of minutes and the convention that excludes the overall median when n is odd. Locate quartile ranks by cumulative frequency, then report the range, $Q1$, $Q3$, and IQR. Split positions 1 – 5 and 6 – 10. Choose between expanding the frequency table into ordered observations and locating the needed ranks with cumulative frequencies. Justify the efficient choice for these counts, then show the original required rank evidence and apply the stated quartile convention.

Value	Frequency
2	3
6	4
10	3

Range, Quartiles, and IQR

Full Worked Solutions - excerpt

Worked example

Problem. Check the required subtraction direction. Given observations 2, 5, 9, a student states: The range is $2 - 9 = -7$. Under the declared quartile convention, identify the precise error and replace the spread calculation with a correct one.

Answer. correction: the range is 7, a nonnegative distance.; diagnosis: minimum was subtracted in the wrong direction

Explanation and check.

The minimum is 2 and maximum is 9, so $\text{range} = 9 - 2 = 7$. Diagnosis: minimum was subtracted in the wrong direction. Therefore the range is 7, a nonnegative distance.

Worked example

Problem. Distinguish an upper quartile from the distance between quartiles. Given ordered data 0, 2, 4, 6, 8, 10, with $Q1 = 2$ and $Q3 = 8$, a student states: The IQR is 8 because $Q3$ is 8. Under the declared quartile convention, identify the precise error and replace the spread calculation with a correct one.

Answer. correction: $Q3$ is 8 but IQR is 6.; diagnosis: $Q3$ was named as the IQR without subtracting $Q1$

Explanation and check.

$\text{IQR} = Q3 - Q1 = 8 - 2 = 6$. Diagnosis: $Q3$ was named as the IQR without subtracting $Q1$. Therefore $Q3$ is 8 but IQR is 6.