

Algebra 1  
Histograms

Histograms | A1-U10-P04  
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     |
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| 08 | Terms of Use & License     | included     |

**Topic focus**  
Across 96 tasks this topic asks for value-to-bin assignments, all bin frequencies, total count, endpoint convention, and unit, feasibility with implied counts, maximum minus minimum frequency, complete possible-count set, diagnosis and repaired intervals and combined exact count.  
**8 PDFs and a README; 175 buyer pages.**

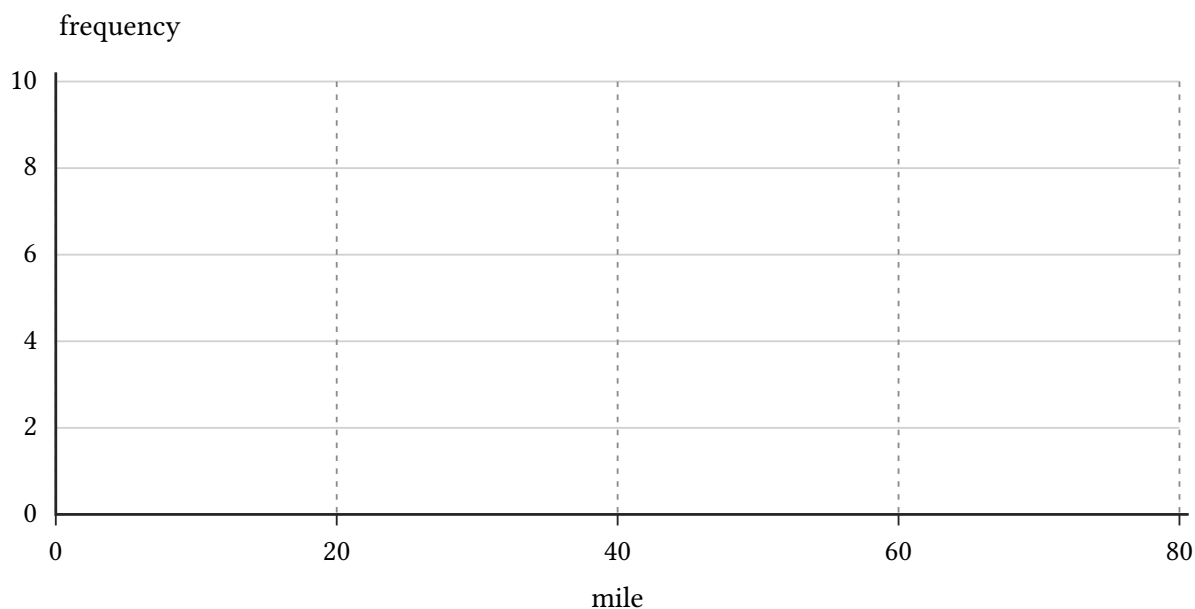
## Algebra 1

## Histograms

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.

A coarse scale uses twenty-unit intervals. Construct a frequency histogram for the exact mile observations 3, 18, 20, 39, 41, 55, 60, 79, 80 using equal-width bin edges 0, 20, 40, 60, 80. Every bin is left-closed/right-open, except the final bin includes its right endpoint. Tally each value once, report every bar height, and retain empty bins. Horizontal width does not change the fact that height is frequency. Match the complete originally requested histogram, count, fraction or density-frequency response. Preserve bar boundaries, the frequency/density distinction, exact endpoint rules and units.



| Position | Supplied value |
|----------|----------------|
| 1        | 3              |
| 2        | 18             |
| 3        | 20             |
| 4        | 39             |
| 5        | 41             |
| 6        | 55             |
| 7        | 60             |
| 8        | 79             |
| 9        | 80             |

Bank label: \_\_\_\_\_

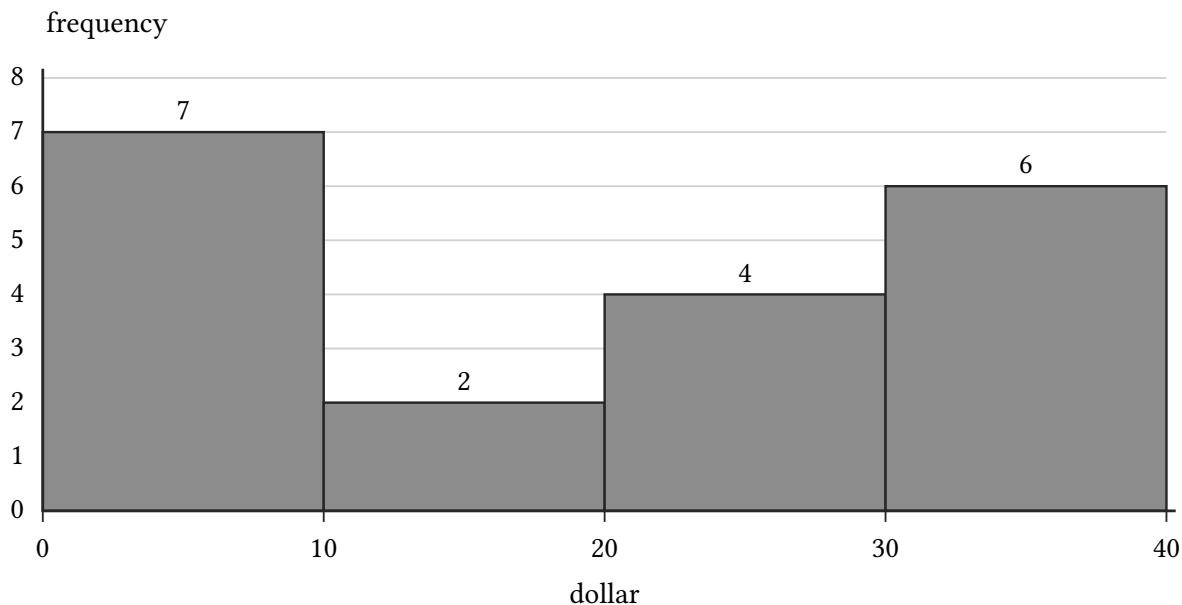
## Algebra 1

## Histograms

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.

The requested set is a union rather than one continuous interval. A frequency histogram has bin edges 0, 10, 20, 30, 40 and bar heights 7, 2, 4, 6 in left-to-right order. Bins are left-closed/right-open, except the final bin includes its right endpoint. Find the count in  $[0, 10)$  or  $[30, 40]$ .



| Interval | frequency |
|----------|-----------|
| [0, 10)  | 7         |
| [10, 20) | 2         |
| [20, 30) | 4         |
| [30, 40] | 6         |

## Algebra 1

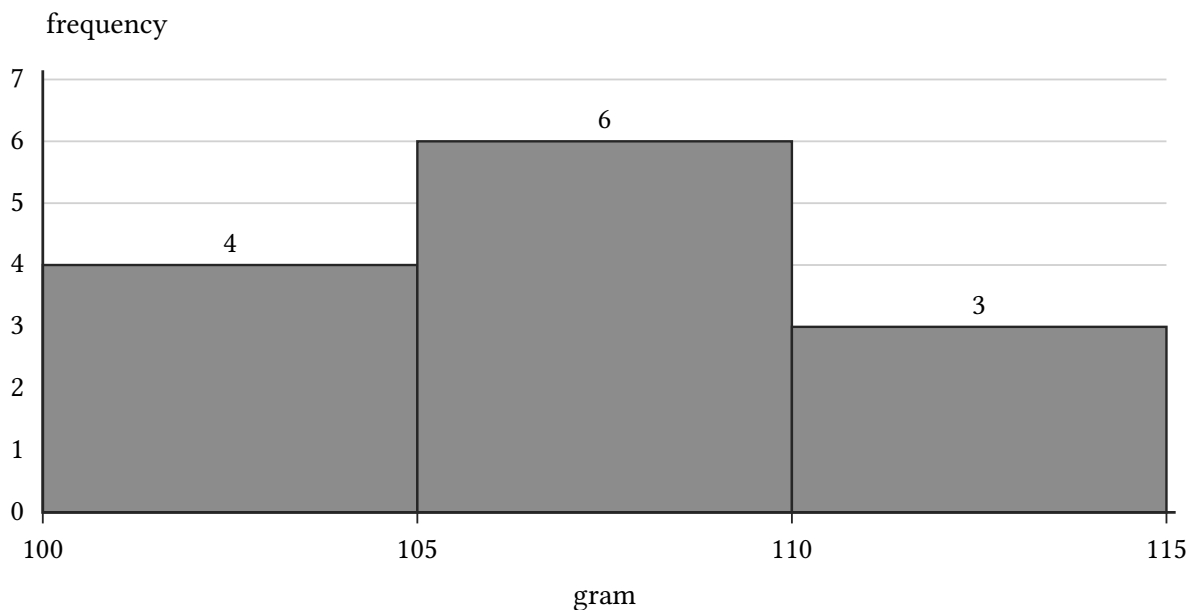
## Histograms

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:** Frequency by interval (degree Celsius):  $[-2, -1)$ : 1;  $[-1, 0)$ : 2;  $[0, 1)$ : 2;  $[1, 2]$ : 3. Total: 8 observations.

Each observation contributes to exactly one bar. A frequency histogram has bin edges 100, 105, 110, 115 and bar heights 4, 6, 3 in left-to-right order. Bins are left-closed/right-open, except the final bin includes its right endpoint. How many observations does the entire histogram represent? Match the complete originally requested histogram, count, fraction or density-frequency response. Preserve bar boundaries, the frequency/density distinction, exact endpoint rules and units.



| Interval     | frequency |
|--------------|-----------|
| $[100, 105)$ | 4         |
| $[105, 110)$ | 6         |
| $[110, 115]$ | 3         |

Your response: \_\_\_\_\_

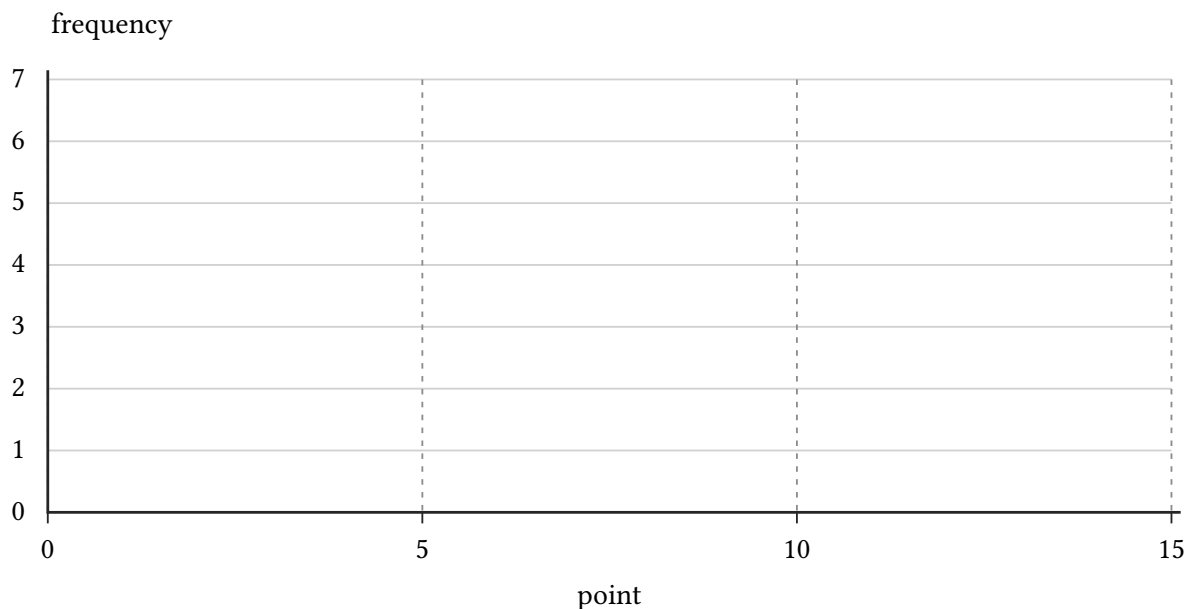
## Algebra 1

## Histograms

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.

No observation lies on an interior edge. Construct a frequency histogram for the exact point observations 1, 2, 6, 7, 8, 11, 14 using equal-width bin edges 0, 5, 10, 15. Every bin is left-closed/right-open, except the final bin includes its right endpoint. Tally each value once, report every bar height, and retain empty bins. All three bars are occupied. Choose a binning strategy: sort the observations before counting intervals, or tally each observation directly into its bin. Justify the efficient route and use the original edge-inclusion convention to construct the histogram.



| Position | Supplied value |
|----------|----------------|
| 1        | 1              |
| 2        | 2              |
| 3        | 6              |
| 4        | 7              |
| 5        | 8              |
| 6        | 11             |
| 7        | 14             |

# Histograms

## Full Worked Solutions - excerpt

### Worked example

**Problem.** In one histogram, a bar contains 9 observations. The corresponding relative-frequency bar has height 0.15. Determine the sample size. Match the complete originally requested histogram, count, fraction or density-frequency response. Preserve bar boundaries, the frequency/density distinction, exact endpoint rules and units.

**Answer.** 60

### Explanation and check.

If  $\frac{9}{N} = 0.15$ , then  $N = \frac{9}{0.15} = 60$ .

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### Worked example

**Problem.** One bar contains 14 observations. Its relative frequency is exactly  $\frac{7}{20}$ . Find the total number of observations. Match the complete originally requested histogram, count, fraction or density-frequency response. Preserve bar boundaries, the frequency/density distinction, exact endpoint rules and units.

**Answer.** 40

### Explanation and check.

Solve  $\frac{14}{N} = \frac{7}{20}$ :  $N = 14(\frac{20}{7}) = 40$ .