

# AP Statistics · Exploring One-Variable Data · Test Answer Key

Common Core AP Statistics Unit 1 (2026-27) · mathovore.fr

This ap statistics one test answer key gives the full solution and the scoring guide for each of the 8 test questions on exploring one-variable data.

Each solution gives a model answer and a scoring guide that shows where every point is earned. Award partial credit by the guide, and require answers about shape, center and spread to name the context and to compare with numbers. Total: 20 points.

## AP StatisticsCommon Core: AP Statistics Unit 1 (2026-27)

### AP Statistics One Test Answer Key: questions 1-5

#### Question 1: Types of variables (2 points)

- Grade level is categorical (the numbers are group labels); hours of sleep is quantitative; favorite sport is categorical.
- For (ii) a histogram, dotplot or boxplot; for (iii) a bar chart.

*Scoring: 1 point for all three classifications correct; 1 point for a valid graph for each of (ii) and (iii).*

#### Question 2: Describe a histogram (3 points)

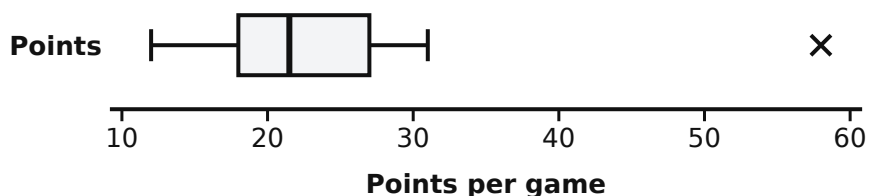
- The distribution is unimodal and skewed right, with most students reading fewer than 15 books and a few reading 25 to 35. Because it is skewed, use the median and range/IQR. The cumulative counts are 9, 23, so the 20th and 21st values are in the 5 to 10 class: the median is in that class. The values range from about 0 to 35 books.
- The mean is greater than the median, because the long right tail pulls the mean up.

*Scoring: Part (a), 1 point for shape (skewed right) and 1 point for a center and spread statement in context (median in the 5 to 10 class, values from 0 to about 35). Part (b), 1 point for greater than, with the skew reason.*

#### Question 3: Quartiles and outliers (3 points)

- Minimum 12,  $Q_1=18$ , median 21.5,  $Q_3=27$ , maximum 58.
- $IQR=27-18=9$ , upper fence  $27+1.5(9)=40.5$ . Since  $58>40.5$ , 58 is an outlier.
- With 58: mean 24.07, median 21.5. Without it: mean 21.46, median 21. The mean drops

by 2.61 and the median by 0.5, so the mean changes more.



Boxplot with the outlier 58 marked by x.

*Scoring: (a) 1 point for all five values correct. (b) 1 point for the fence calculation and comparison. (c) 1 point for both new values and the conclusion that the mean changes more because it is not resistant.*

#### Question 4: Standard deviation (2 points)

- $\bar{x} = \frac{45}{5} = 9$  hours.
- Squared deviations: 25, 4, 0, 9, 16, sum 54.  $s = \sqrt{\frac{54}{4}} = \sqrt{13.5} \approx 3.67$  hours.

*Scoring: (a) 1 point. (b) 1 point for dividing by  $n - 1 = 4$  and the correct value (award no point if divided by 5, which gives 3.29).*

#### Question 5: Compare standardized values (2 points)

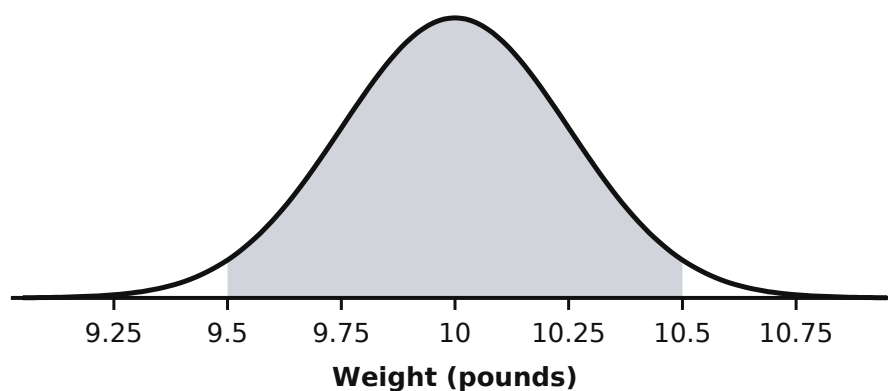
- $z_{\text{run}} = \frac{72-84}{0.8} = -1.5$  and  $z_{\text{swim}} = \frac{62-70}{6} \approx -1.33$ .
- The run: her time is 1.5 standard deviations below the mean, a bit farther than the swim's 1.33, and lower is better.

*Scoring: (a) 1 point for both z-scores. (b) 1 point for choosing the run with the comparison of z-scores.*

### AP Statistics One Test Answer Key: questions 6-8

#### Question 6: Normal model percentages (3 points)

- $9.5 = 10 - 2(0.25)$  and  $10.5 = 10 + 2(0.25)$ , so about 95%.
- 10.25 is one standard deviation above the mean. The area above is  $\frac{100\% - 68\%}{2} = 16\%$ .
- $z = \frac{9.4-10}{0.25} = -2.4$ . Since  $|-2.4| > 2$ , the bag is unusual.



The shaded area within 2 standard deviations of the mean is about 95%.

*Scoring: (a) 1 point for 95% with the 2-standard-deviation reasoning. (b) 1 point for 16% (approximately 15.9% accepted). (c) 1 point for  $z = -2.4$  and a conclusion that compares with 2.*

### Question 7: Percentile of a normal value (2 points)

- The z-score with 0.80 of the area to its left is  $z \approx 0.84$ .
- $x = 500 + 0.8416(100) \approx 584.2$ , so the 80th percentile is about 584.

*Scoring: (a) 1 point for  $z$  of about 0.84. (b) 1 point for the score 584 (accept 584.2, or 584 from  $z = 0.84$ ).*

### Question 8: Compare two classes (3 points)

**Center:** the medians are nearly equal, 84 for Class X and 85 for Class Y, so a typical student scored about the same.

**Spread:** Class Y has far more variability. Its IQR is 20 points and its range is 39 points, compared with an IQR of 10 and a range of 22 points for Class X.

**Shape:** Class X is roughly symmetric. Class Y has a longer lower whisker (60 to 73.5) than upper, so it is skewed left. Neither class has an outlier.

*Scoring: 1 point for a comparison of centers with numbers, 1 point for a comparison of spread with numbers (IQR or range), 1 point for a correct statement about shape. Each statement must name both classes and use comparison words, not just list values.*

### Scoring summary

|                                                                                               |
|-----------------------------------------------------------------------------------------------|
| <b>Total</b>                                                                                  |
| <b>20 points:</b> add the points of every question of this ap statistics one test answer key. |

## How to use this ap statistics one test answer key

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Use this ap statistics one test answer key to score the test fairly and to see which skills need more practice.

