

AP Statistics · Regression Analysis · Test Answer Key

Common Core AP Statistics Unit 5 (2026-27) · mathovore.fr

This ap statistics two test answer key gives the full solution and the scoring guide for each of the 8 test questions on regression analysis.

Each solution gives a model answer and a scoring guide showing where every point is earned. Award credit for interpretations only when they are written in context and name both variables. Follow-through credit applies when a later part uses the student's own earlier result. Total: 20 points.

AP StatisticsCommon Core: AP Statistics Unit 5 (2026-27)

AP Statistics Two Test Answer Key: questions 1-5

Question 1: Describe a scatterplot (3 points)

Direction and form: negative and linear; heavier cars tend to have lower fuel efficiency.

Strength: strong. Eleven of the 12 points lie very close to a line.

Unusual point: the car weighing 3,000 pounds with 46 mpg is far above the pattern (an outlier).

Scoring: 1 point for direction and form, 1 point for strength, 1 point for identifying the outlier at weight 30 and 46 mpg. Answers must refer to weight and fuel efficiency, not just x and y.

Question 2: Correlation (2 points)

- The association is **strong and negative**: more social media time goes with less sleep.
- r stays -0.85**. Correlation has no units and is unchanged by a linear change of units.

Scoring: (a) 1 point for strong and negative, in context. (b) 1 point for no change, with the reason about units.

Question 3: Least-squares line from statistics (3 points)

- $b = 0.8 \cdot \frac{9}{10} = 0.72$.
- $a = 72 - 0.72(35) = 46.8$, so $\hat{y} = 46.8 + 0.72x$.
- $\hat{y} = 46.8 + 0.72(50) = 82.8$.

Scoring: (a) 1 point for 0.72. (b) 1 point for 46.8, using the slope from (a) (follow-through). (c) 1 point for 82.8 from the student's own equation.

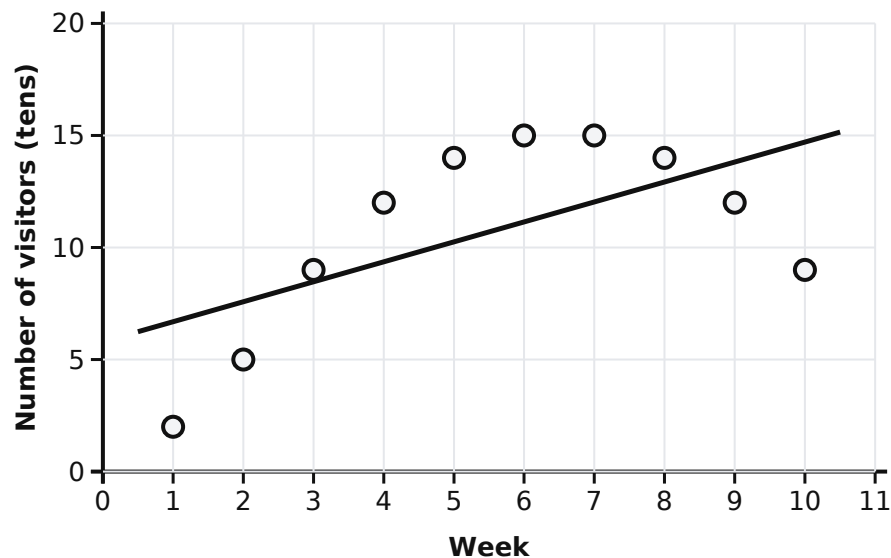
Question 4: Interpret the model (3 points)

- For each additional inch of height, the predicted weight increases by about 4.0 pounds.
- At a height of 0 inches the predicted weight is -140 pounds. This is not meaningful: 0 inches is far outside the data, and a weight cannot be negative.
- About 64% of the variation in teenagers' weights is explained by the linear relationship with height.

Scoring: 1 point for each part. The slope needs both variables, the change per unit and the word predicted (or average). The intercept needs the interpretation and the reason it is not meaningful. r squared needs the percent of variation in weight explained by height.

Question 5: Residuals and residual plots (3 points)

- $\hat{y} = 5.8 + 0.891(2) = 7.582$, so the residual is $5 - 7.582 \approx -2.58$. The model overestimated by about 2.6 tens.
- A linear model is **not appropriate**. The residuals form a curved pattern (negative, then positive, then negative), which means the relationship is curved.



The data curve, so a line is not a good model.

Scoring: (a) 1 point for -2.58 (accept -2.6). (b) 1 point for saying not appropriate; 1 point for citing the curved pattern in the residual plot.

AP Statistics Two Test Answer Key: questions 6-8

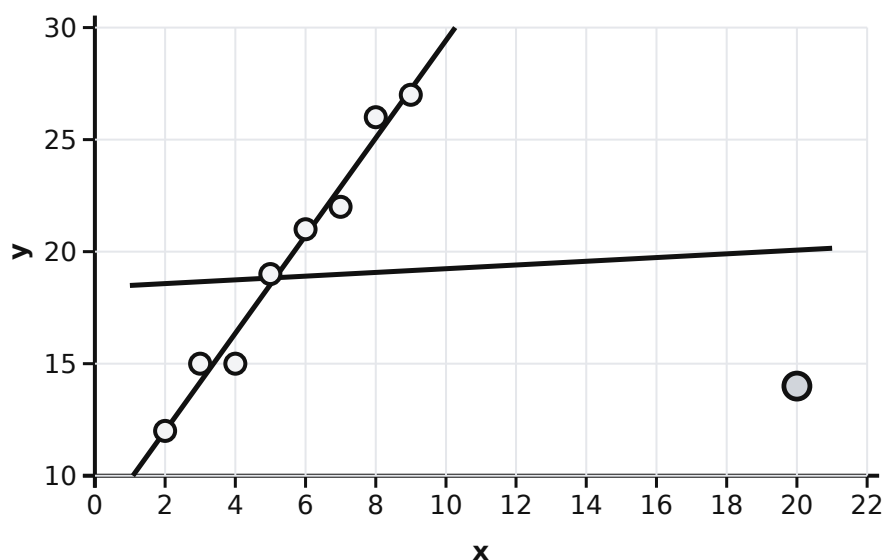
Question 6: Extrapolation (2 points)

- $\hat{y} = 4.2 + 1.9(100) = 194.2$ pounds.
- Week 100 is far outside the data (weeks 8 to 20). This is extrapolation, and growth does not continue at a constant rate.

Scoring: (a) 1 point for 194.2. (b) 1 point for naming extrapolation and the reason the pattern may not continue.

Question 7: Influential point (2 points)

- The point (20, 14). It is far from the other x values and does not follow their pattern, so it pulls the line toward it.
- The slope will increase sharply (from about 0.08 to about 2.18) and r will move much closer to 1 (from about 0.08 to about 0.99).



Solid line with slope 2.18: without (20, 14). Almost flat line (slope 0.08): all nine points.

Scoring: (a) 1 point for (20, 14) with a reason about its x position. (b) 1 point for stating that both the slope and r increase.

Question 8: Computer output (2 points)

- $\hat{y} = 31.2 + 2.45x$. At 10 years: $31.2 + 2.45(10) = 55.7$, about \$55,700.
- $r = +\sqrt{0.81} = 0.9$ (positive, since the slope is positive). $S = 3.1$ means the actual salaries typically differ from the predicted salaries by about 3.1 thousand dollars.

Scoring: (a) 1 point for the equation and 55.7. (b) 1 point for $r = 0.9$ with the correct sign and the interpretation of S as a typical prediction error.

Scoring summary

Total
20 points: add the points of every question of this ap statistics two test answer key.

How to use this ap statistics two test answer key

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

