

AP Statistics - Variables and Categorical Data Displays - Test Answer Key

Common Core AP STAT 1.1, AP STAT 1.2, AP STAT 1.3, HSS-ID.A.1 · maths-pdf.fr/en/

Each solution includes a scoring guide with partial credit. Award the points for the correct calculation and for the sentence that interprets the answer in context.

AP Statistics · Common Core State Standards: **AP STAT 1.1, AP STAT 1.2, AP STAT 1.3, HSS-ID.A.1**

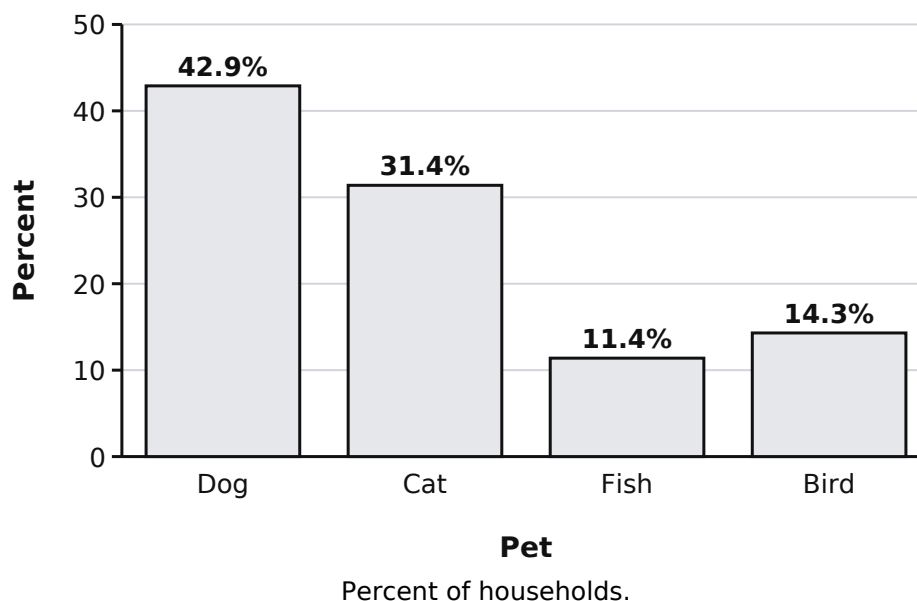
Question 1 - Variable types [2 pts]

- a. Quantitative
- b. Categorical
- c. Categorical
- d. Quantitative

Quantitative, categorical, categorical, quantitative.

Scoring: 0.5 point for each correct classification.

Question 2 - Frequency table [3 pts]



(a) $30+22+8+10=70$ households.

(b) $\frac{30}{70} \approx 42.9\%$, $\frac{22}{70} \approx 31.4\%$, $\frac{8}{70} \approx 11.4\%$, $\frac{10}{70} \approx 14.3\%$.

70 households; 42.9%, 31.4%, 11.4%, 14.3%.

Scoring: 1 point for the total; 1 point for the correct method (count divided by total); 1 point for all four correct percents (allow one rounding slip).

Question 3 - Missing category [2 pts]

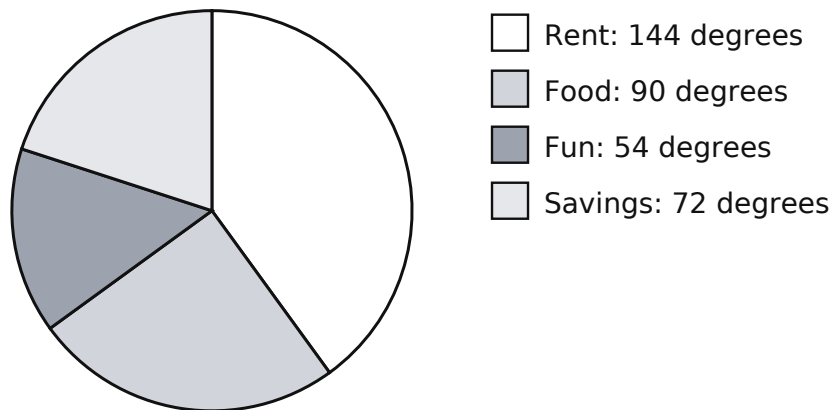
Water: $100\% - 48\% - 30\% - 14\% = 8\%$.

$0.08 \times 200 = 16$.

16 adults.

Scoring: 1 point for 8%; 1 point for 16.

Question 4 - Pie chart [2 pts]



Slices in degrees.

Food: $0.25 \times 360^\circ = 90^\circ$. Fun: $0.15 \times 360^\circ = 54^\circ$.

90 and 54 degrees.

Scoring: 1 point for each correct angle.

Question 5 - Compare groups [3 pts]

(a) Boys: $0.60 \times 50 = 30$. Girls: $0.75 \times 80 = 60$.

(b) The groups have different sizes, so counts would not compare fairly.

30 boys and 60 girls; use percents because the group sizes differ.

Scoring: 1 point for each count; 1 point for a correct explanation about group size.

Question 6 - Appropriate display [2 pts]

Students can pick several clubs, so the percents can add to more than 100%. A pie chart requires the parts to make one whole.

Use a bar graph.

Scoring: 1 point for the reason (percents do not add to 100%); 1 point for naming a bar graph.

Question 7 - Misleading graph [2 pts]

Visible heights: $78 - 75 = 3$ and $84 - 75 = 9$, so the bar looks $\frac{9}{3} = 3$ times as tall.

Actual: $\frac{84}{78} \approx 1.08$.

3 times as tall; actually about 1.08 times as large.

Scoring: 1 point for the apparent ratio 3; 1 point for the actual ratio about 1.08.

Question 8 - Find the total [2 pts]

$$n = \frac{63}{0.21} = 300.$$

300 students.

Scoring: 1 point for setting up $0.21n = 63$; 1 point for 300.

Question 9 - Describe the distribution [2 pts]

Percents: $\frac{100}{250} = 40\%$, $\frac{90}{250} = 36\%$, $\frac{60}{250} = 24\%$.

Online classes were most popular (40% of the 250 students), followed closely by in-person (36%); hybrid was least popular at 24%.

Scoring: 1 point for the correct percents; 1 point for a sentence that uses context and names

most and least popular.

Total
20 points