

AP Statistics - Two Categorical Variables and Two-Way Tables - Test

Common Core AP STAT 2.1, AP STAT 2.2, AP STAT 2.3, HSS-ID.B.5 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 45-minute test covers two-way tables, the three kinds of relative frequency, segmented bar graphs, and association. Show each division and state your conclusions in context.

About this test

- Grade: AP Statistics
- Chapter: Two Categorical Variables and Two-Way Tables
- Standards: AP STAT 2.1, AP STAT 2.2, AP STAT 2.3, HSS-ID.B.5
- Time: 45 minutes
- Total: 20 points

Question 1 - Marginal and joint [3 pts]

Sport \ Grade	Grade 9	Grade 12	Total
Plays a sport	45	25	70
No sport	15	65	80
Total	60	90	150

Sports participation.

(a) Find the marginal relative frequency of students who play a sport. (1 point) (b) Find the percent of all students who are in Grade 12 and play a sport. (1 point) (c) Complete: the number of Grade 9 students is _____. (1 point)

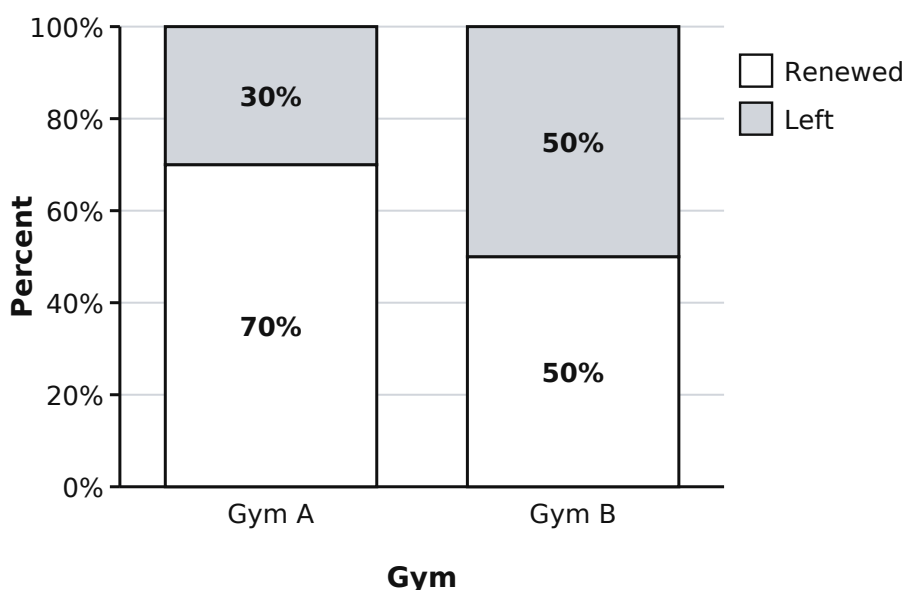
Question 2 - Conditional percents [3 pts]

Sport \ Grade	Grade 9	Grade 12	Total
Plays a sport	45	25	70
No sport	15	65	80
Total	60	90	150

Sports participation.

Use the sports table. Find the percent of Grade 9 students who play a sport and the percent of Grade 12 students who play a sport. (2 points) Is there an association? (1 point)

Question 3 - Segmented bar graph [3 pts]



Membership renewals.

Gym A has 300 members and Gym B has 200 members. (a) How many renewed at each gym? (2 points) (b) Does the graph show that Gym A causes renewals? Explain. (1 point)

Question 4 - Choose the denominator [2 pts]

In a table, 18 of 90 seniors and 12 of 60 juniors are in a club. A student claims the club has more seniors, so seniors are more likely to join. Respond using percents.

Question 5 - Simpson's paradox [3 pts]

Hospital A treats 90 mild cases (81 recover) and 10 severe cases (3 recover). Hospital B treats

20 mild cases (19 recover) and 80 severe cases (28 recover). Compare the overall recovery rates, then the rates within each severity level.

Question 6 - Complete a table [2 pts]

A table of 80 students has 50 in Grade 10, of whom 30 take band. In Grade 11, 12 take band. Find the number in Grade 11 who do not take band.

Question 7 - Explain a vocabulary term [2 pts]

Define conditional relative frequency and give an example from the sports table.

Question 8 - Missing counts [2 pts]

A survey of 120 people shows 70 prefer summer. Of the 50 who prefer winter, 30 are under 30 years old. If 55 people are under 30 in all, how many people who prefer summer are under 30?