Two-Way Frequency Tables

Algebra 1 •Section 10.6

Name: _____	Date: _____	Score: _____ / 12

Quick Review and Helpful Hints

Data questions are about choosing the right summary. Read the labels carefully, identify the total or condition being used, and connect each statistic to what it tells about the data.

▷ **Example:** Find the mean of $6, 8, 10, 12$.
Work: Add the values to get 36, then divide by 4 values.

★ **Answer:** 9

Practice Problems

Solve each problem. Show enough work that another student could follow your thinking.

1. In a table, 18 of 50 students play soccer. Find the relative frequency.

2. If 12 of 30 girls choose art, find the conditional frequency.

3. A table total is 80 and a cell is 20. Find the joint relative frequency.

4. If 25 students prefer math and 15 prefer science, total?

5. Out of 60 students, 36 are in band. Find percent.

6. If 8 of 20 athletes also play music, find conditional percent.

7. What does a marginal total show?

8. What does a joint frequency show?

9. If row total is 45 and cell count is 9, find row relative frequency.

10. If column total is 32 and cell count is 24, find column relative frequency.

Word Problems

11. A survey has 100 students. 40 like algebra, and 25 like both algebra and geometry. Find percent who like both.

12. In a club, 18 of 30 ninth graders prefer online practice. Find conditional percent.

Answer Keys

1. 0.36
2. 0.40
3. 0.25
4. 40
5. 60%
6. 40%
7. Total for a row or column
8. Count in one cell for two categories
9. 0.20
10. 0.75
11. 25%
12. 60%

Step-by-Step Explanations

1. Relative frequency turns a count into a proportion — divide the 18 by the 50 total to get 0.36.
2. 'Conditional' means you've narrowed to just the girls, so the denominator is 30: $12/30 = 0.40$.
3. A joint frequency compares one cell to the grand total: $20/80 = 0.25$.
4. These two groups don't overlap, so just combine the counts: $25 + 15 = 40$.
5. Divide to get the proportion, then shift to percent: $36/60 = 0.60$, which is 60%.
6. You're conditioning on athletes, so the base is 20: $8/20 = 0.40$, or 40%.
7. Marginal totals sit in the margins of the table and sum up one whole category at a time.
8. A joint frequency lives in a single cell — it's the count of people who fit both categories at once.
9. Compare the cell to its own row: $9/45 = 0.20$.
10. Here the column is the base, so divide the cell by it: $24/32 = 0.75$.
11. With 100 students total, 25 liking both is conveniently already a percent: 25%.
12. Focus only on the ninth graders as your base: $18/30 = 0.60$, which is 60%.

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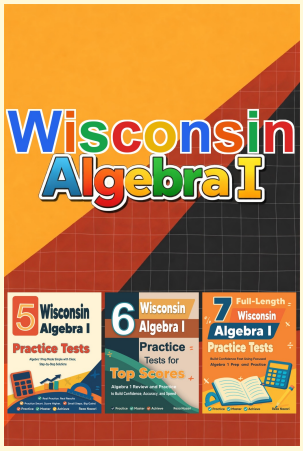

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