

Grade 8 - Two-Way Tables and Relative Frequency - Answer Key

Common Core 8.SP.A.4 · maths-pdf.fr/en/

This answer key gives a full worked solution for each of the 20 problems on the two-way tables worksheet (Common Core 8.SP.A.4). Compare each step with your own work, not only the final answer, and note any step where your method differed.

Grade 8 · Common Core State Standards: **8.SP.A.4**

Exercise 1 - Read a joint frequency

Read the cell in the Girls row and the Phone column.

38 girls

Exercise 2 - Marginal totals

Boys: $34+6=40$. Phone: $34+38=72$. Grand total: $40+50=90$.

	Phone	No phone	Total
Boys	34	6	40
Girls	38	12	50
Total	72	18	90

Completed table.

40, 72 and 90

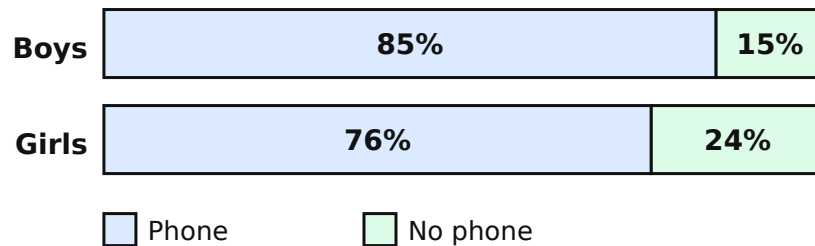
Exercise 3 - Relative frequency of the total

$\frac{38}{90} \approx 0.422$.

about 42.2%

Exercise 4 - Row relative frequency

Boys: $\frac{34}{40} = 0.85$. Girls: $\frac{38}{50} = 0.76$.



Row percents.

85% of boys and 76% of girls

Exercise 5 - Column relative frequency

$\frac{34}{72} \approx 0.472$.

about 47.2%

Exercise 6 - Compare groups

85% and 76% are only 9 percentage points apart, so the association is weak.

Only a weak association

Exercise 7 - Missing cells

Sport row: $30 - 18 = 12$. No sport, reads daily: $32 - 18 = 14$, also $50 - 36 = 14$.

	Reads daily	Does not	Total
Sport	18	12	30
No sport	14	36	50
Total	32	48	80

Survey of 80 students.

12, 14 and 32

Exercise 8 - Sport and reading percents

Sport: $\frac{18}{30} = 60\%$. No sport: $\frac{14}{50} = 28\%$.

60% and 28%

Exercise 9 - Association?

60% versus 28% is a large difference of 32 percentage points.

Yes, there is an association

Exercise 10 - Of the daily readers

$\frac{18}{32} = 0.5625$.

56.25%, about 56%

Exercise 11 - Three categories

7th: $\frac{20}{50} = 40\%$. 8th: $\frac{15}{60} = 25\%$.

40% and 25%

Exercise 12 - Largest category

Pizza total: $25 + 35 = 60$. $\frac{60}{110} \approx 54.5\%$.

Pizza, about 54.5%

Exercise 13 - Recycling

Maple: $\frac{45}{50} = 90\%$. Oak: $\frac{30}{50} = 60\%$.

90% and 60%

Exercise 14 - Recycling association

The rates differ by $90 - 60 = 30$ percentage points.

Yes, a clear association (30 points)

Exercise 15 - Bake sale table

Morning total: 30. Afternoon total: 30. Muffins: 32. Cookies: 28.

	Muffins	Cookies	Total
Morning	20	10	30
Afternoon	12	18	30
Total	32	28	60

Bake sale.

Morning muffins: $\frac{20}{30} \approx 66.7\%$.

about 66.7%

Exercise 16 - Build a table

	Walks	Does not walk	Total
Has a bike	3	5	8
No bike	1	3	4
Total	4	8	12

Twelve students.

Bike: 8; no bike: 4; walks: 4; does not walk: 8; total: 12

Exercise 17 - Reading a percent

There are 40 boys and 50 girls. Counts depend on the group size, so compare percents: 85% of boys and 76% of girls.

Compare relative frequencies, not counts

Exercise 18 - Sleep survey

Grade 7: $\frac{22}{40} = 55\%$. Grade 8: $\frac{15}{40} = 37.5\%$.

55% and 37.5%; Grade 7 is 17.5 points higher, a moderate difference

Exercise 19 - Cause and effect

No. The table shows an association only. Other factors, like how much free time a student has, could explain the pattern.

No, association is not causation

Exercise 20 - Interpret a percent

Sixty percent of the students who play a sport read daily, because $\frac{18}{30} = 0.6$.

60% of athletes read daily