

Grade 8 · Two-Way Tables · Quiz

Common Core 8.SP.A.4 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

Ten multiple-choice questions check your skill with two-way tables: reading counts, choosing the right total, finding relative frequencies, and deciding about association. Pick the one correct answer, then read the explanation to learn from any mistake.

Grade 8 Common Core: 8.SP.A.4

Questions

Question 1

How many boys chose basketball?

Favorite sport			
Group	Soccer	Basketball	Total
Girls	22	18	40
Boys	15	25	40
Total	37	43	80

Sport choice by group.

- A. 25
- B. 15
- C. 18
- D. 43

Question 2

Use the same table. How many students chose soccer in all?

- A. 22
- B. 15
- C. 43
- D. 37

Question 3

Use the same table. What percent of all 80 students are girls who chose basketball?

- A. 45%
- B. 22.5%
- C. 41.9%
- D. 18%

Question 4

Use the same table. What percent of the boys chose basketball?

- A. 58.1%
- B. 31.25%
- C. 37.5%
- D. 62.5%

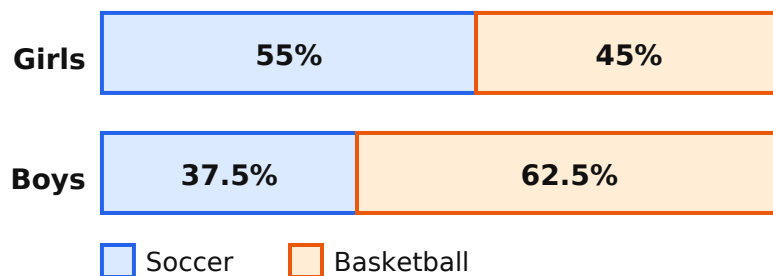
Question 5

Use the same table. Of the students who chose soccer, what percent are girls?

- A. 55%
- B. 59.5%
- C. 27.5%
- D. 40.5%

Question 6

The bars show the sport choices of girls and boys. What do they suggest?



Sport choice, row percents.

- A. A possible association: boys are more likely to choose basketball
- B. No association: both groups chose both sports
- C. Girls and boys chose basketball equally often
- D. Girls are more likely to choose basketball

Question 7

Which statement is correct?

Favorite pet			
Grade	Dog	Cat	Total
Grade 7	30	20	50
Grade 8	36	24	60
Total	66	44	110

Pet choice by grade.

- A. Association: more eighth graders chose dogs (36 versus 30)
- B. Association: 50% of seventh graders chose dogs
- C. No association: 60% of each grade chose dogs
- D. No association: the two grades have different totals

Question 8

Use the pet table. Which fraction gives the percent of seventh graders who chose cats?

- A. $\frac{20}{50}$
- B. $\frac{20}{44}$
- C. $\frac{20}{110}$
- D. $\frac{20}{30}$

Question 9

A club has 120 girls and 60 boys. Of them, 54 girls and 36 boys signed up for a trip. Who is more likely to sign up?

- A. Girls, since 54 is greater than 36
- B. Equally likely, since 54 and 36 are both under 60
- C. Boys, since 60% of boys signed up versus 45% of girls
- D. Girls, since there are more girls in the club

Question 10

What is the missing value, shown as a question mark?

Trip			
Sibling	Walk	Bus	Total
Has sibling	18	?	30
No sibling	14	16	30
Total	32	28	60

A two-way table with one missing cell.

- A. 16
- B. 14
- C. 32
- D. 12

Answer key

1. **A** – Read the row Boys and the column Basketball: 25. The number 43 is the basketball column total.
2. **D** – Add the soccer column: $22+15=37$. The number 22 counts only girls.
3. **B** – The cell is 18 and the grand total is 80: $\frac{18}{80}=22.5\%$. Dividing by the girls total, 40, gives 45%, which is a different question.
4. **D** – Divide by the boys row total: $\frac{25}{40}=62.5\%$. Dividing by 43 mixes in the column total.
5. **B** – Divide by the soccer column total: $\frac{22}{37}\approx 59.5\%$. Dividing by 40 gives the percent of girls who chose soccer.
6. **A** – Basketball is 62.5% for boys and 45% for girls. The percents are noticeably different, so the variables may be associated.
7. **C** – Both rows give $\frac{30}{50}=\frac{36}{60}=60\%$. Comparing raw counts is misleading because the grades have different sizes.
8. **A** – The group is seventh graders, so divide by the Grade 7 row total, 50. The fraction with 44 is the share of cat lovers who are in Grade 7.
9. **C** – Compare percents: $\frac{36}{60}=60\%$ for boys and $\frac{54}{120}=45\%$ for girls. More girls signed up only because there are more girls.
10. **D** – The first row total is 30, so the missing cell is $30-18=12$. The number 32 is the Walk column total.

Remember:

- Standard 8.SP.A.4: build and interpret two-way tables, and use relative frequencies to describe possible association.
- Inner cells are joint frequencies; the bottom row and right column hold the totals.
- Relative frequency = a count divided by a row total or a column total.
- Noticeably different row percents suggest an association; about equal row percents suggest none.
- Compare percents, not raw counts, because the groups can be different sizes.