

Two-Way Tables



Complete two-way tables, and find probabilities including AND/OR and conditional (given).

Name _____

Date _____

Show your method

A missing cell = row total minus the other cells in that row (or column total minus the other cells in that column). Probability = count ÷ total. For "given", divide by that row's or column's own total, not the grand total.

Worked example Find P(Right-handed AND Swimming) from this table.

Sport	Football	Swimming	Total
Left	4	6	10
Right	14	16	30
Total	18	22	40

Right-handed AND Swimming: 16

Grand total: 40

$$P = \frac{16}{40} = \frac{2}{5}$$

1. Complete the missing Right/-Football cell.

Solution: 14

Sport	Football	Swimming	Total
Left	4	6	10
Right		16	30
Total	18	22	40

2. How many students are there in total?

Solution: 40

3. How many prefer Swimming in total?

Solution: 22

4. How many Left-handed students are there in total?

Solution: 10

5. Find P(Left-handed AND Football).

Solution: $\frac{4}{40} = \frac{1}{10}$

6. Find P(prefers Swimming), any-handedness.

Solution: $\frac{22}{40} = \frac{11}{20}$

7. Given Left-handed, find P(Football).

Solution: $\frac{4}{10} = \frac{2}{5}$

8. Given Right-handed, find P(Football).

Solution: $\frac{14}{30} = \frac{7}{15}$

9. Is P(Football) higher for Left- or Right-handed students?

Solution: Right-handed ($\frac{7}{15} \approx 0.47$ vs $\frac{2}{5} = 0.4$)

Two-Way Tables (continued)

A bigger table, AND/OR probabilities, and comparing conditional rates.



Name _____

Date _____

10. Complete the missing Class B/Fail cell.

Solution: 5

Result	Pass	Fail	Total
Class A	18	2	20
Class B	15		20
Class C	12	8	20
Total	45	15	60

11. How many students in total, across all three classes?

Solution: 60

12. Find $P(\text{Pass})$, across all classes, as a decimal (2 d.p.).

Solution: $\frac{45}{60} = 0.75$

13. Given Class A, find $P(\text{Pass})$.

Solution: $\frac{18}{20} = \frac{9}{10}$

14. Given Class C, find $P(\text{Pass})$.

Solution: $\frac{12}{20} = \frac{3}{5}$

15. Which class has the highest pass rate?

Solution: Class A ($\frac{9}{10} = 0.9$)

16. Find $P(\text{Class A OR Pass})$.

Solution: $\frac{20+27}{60} = \frac{47}{60}$

17. How many are NEITHER in Class A NOR passed?

Solution: $5 + 8 = 13$

18. Find $P(\text{neither Class A nor Pass})$, using Q17.

Solution: $\frac{13}{60}$