

Conditional Probabilities Using Tables:

KEY

Ex. 3: A recent survey asked 100 people if they liked ice cream more than pizza. The results of the survey are shown in the table.

Gender	Yes	No	Total
Male	32	18	50
Female	8	42	50
Total	40	60	100

- Find the probability that a person answers yes, given that the person is female.
- Find the probability that a person answers no, given that the person is male.

5. Eighty students in a high school cafeteria were asked if they favored assigned seats at lunch. The results of the survey are shown in the table.

	Favor	Oppose	No Opinion	Total
Freshman	15	27	8	50
Sophomores	23	5	2	30
Total	38	32	10	80

If a student is selected at random, find these probabilities.

- Given a student is a freshman, he opposes assigned seats.
- Given a student is in favor of assigned seats, the student is a sophomore.

6. A study of graduates' average grades and degrees showed the following results.

Degree	C	B	A	Total
B.S.	5	8	15	28
B.A.	7	12	8	27
Total	12	20	23	55

## Conditional Probabilities Using Table (con't)

**Example 3:** A recent survey asked 100 people if they liked ice cream more than pizza.

1. What percent of the people are male?  $\frac{50}{100} = 50\%$
2. What percent of the people are female?  $\frac{50}{100} = 50\%$
3. What percent of the people answered yes?  $\frac{40}{100} = 40\%$
4. What percent of the people answered no?  $\frac{60}{100} = 60\%$
5. What percent of the people are female and answered yes?  $\frac{8}{100} = 8\%$
6. What percent of the people answered yes, given they are female?  $\frac{8}{50} = 16\%$
7. What percent of the people answered no, given they are male?  $\frac{18}{50} = 36\%$
8. Find the probability of a person being male, given they answered yes.  $\frac{32}{40} = 80\%$
9. Find the probability of a person being female, given they answered no.  $\frac{42}{60} = 70\%$
10. Find the probability of a person answering yes and being male.  $\frac{32}{100} = 32\%$

**Example 5:** Eighty students in a high school cafeteria were asked if they favored assigned seats at lunch.

11. What percent of the students are freshman?  $\frac{50}{80} = 62.5\%$
12. What percent of the students favor assigned seats?  $\frac{38}{80} = 47.5\%$
13. What percent of the students oppose and are freshman?  $\frac{27}{80} \approx 33.8\%$
14. What percent of the sophomores had no opinion? (Hint: total sophomores is your denominator)  
 $\frac{2}{30} \approx 6.7\%$
15. What percent of the students that favored assigned seats were freshman?  $\frac{15}{38} \approx 39.5\%$
16. Find the probability that a person favors assigned seats, given they are a sophomore.  $\frac{23}{30} \approx 76.7\%$
17. Find the probability that a student is a freshman and has no opinion?  $\frac{8}{80} = 10\%$
18. Find the probability that a student opposes assigned seats.  $\frac{32}{80} = 40\%$
19. Find the probability that a person if a sophomore, given they oppose assigned seats.  $\frac{5}{32} \approx 15.6\%$
20. What percent of the students were sophomores or freshman?  $100\%$

**Example 6:** A study of graduates' average grades and degrees showed the following results.

21. Find the probability that a graduate is an A student.  $\frac{23}{55} \approx 41.8\%$
22. What percent of the graduates are B students?  $\frac{20}{55} \approx 36.4\%$
23. Find the probability that a graduate earned their B.A.  $\frac{27}{55} \approx 49.1\%$
24. Find the probability that a graduate earned their B.S. given they were a C student.  $\frac{5}{12} \approx 42.7\%$
25. What percent of the graduates were B students, given they earned their B.A.?  $\frac{12}{27} \approx 44.4\%$
26. What percent of graduates earned their B.S.?  $\frac{28}{55} \approx 50.9\%$
27. What percent of C students earned their B.A.?  $\frac{7}{12} \approx 58.3\%$
28. What percent of graduates are a C student?  $\frac{12}{55} \approx 21.8\%$
29. Find the probability that a graduate earned their B.S. and was an A student.  $\frac{15}{55} \approx 27.3\%$
30. Find the probability that a graduate was a B student and earned a B.A.  $\frac{12}{55} \approx 21.8\%$