

Name: _____

Due Date: _____

Teacher: _____

Parent Sign: _____

Two-way frequency tables and Venn diagrams (1–20)

1. In a class of 30 students: 12 boys like soccer, 8 boys like basketball, 6 girls like soccer, 4 girls like basketball. How many students like soccer?
2. Using the same class in Q1, how many girls are there?
3. In a survey of 40 people, 15 own a cat, 10 own a dog, and 5 own both. How many people own at least one pet?
4. From Q3, how many own only a cat?
5. 80 students: 50 study Math, 30 study Science, 20 study both. How many study neither Math nor Science?
6. In a group of 25 students, 14 play piano, 9 play guitar, and 5 play both. How many play exactly one instrument?
7. A two-way table records 20 males and 30 females. Of the males, 8 like chess and 12 do not. Of the females, 10 like chess and 20 do not. How many students do not like chess?
8. A club has 24 members: 10 are seniors, 14 are juniors. 7 seniors are in Sport A and 3 seniors in Sport B. All juniors are in Sport A. How many members are in Sport A?
9. In a survey, 60 people were asked about Tea and Coffee. 35 like Tea, 28 like Coffee, 15 like both. How many like only Coffee?
10. A class of 28: 18 students wear glasses, 14 do not. Of those who wear glasses, 7 are left-handed. How many students are right-handed and wear glasses?
11. 45 students: 20 in Club X, 25 in Club Y, overlap 8. How many are in exactly one club?
12. In a survey of 50 students, 30 like reading, 22 like sports, and 10 like both. How many like reading but not sports?
13. 36 students categorized by grade (8th or 7th) and lunch (hot or cold). 20 are 8th graders, and among all students 14 have hot lunch. If 12 of the 8th graders have cold lunch, how many 7th graders have hot lunch?
14. 100 people, 60 have smartphones, 40 have tablets, 25 have both. How many have exactly one of the two devices?
15. 70 visitors, 45 tried the roller coaster, 30 tried the Ferris wheel, 20 tried both. How many tried neither?
16. 50 students by sport ($\frac{Soccer}{No}$ Soccer) and gender. There are 20 boys who play soccer, 10 boys who do not, 8 girls who play soccer. How many girls do not play soccer?
17. In a group of 40, 18 speak Spanish, 14 speak French, 6 speak both. How many speak neither Spanish nor French?
18. 36 students; 12 play basketball, 20 play baseball, overlap 5. How many play basketball only?
19. In a class of 32, 18 brought homework, 14 did not. Of those who brought homework, 5 were absent last week. How many students brought homework and were present last week?
20. 60 people by Age (Under $\frac{30}{and\ over}$ and over) and Exercise ($\frac{Yes}{No}$). Under 30: 25 exercise, 15 don't. 30 and over: 10 exercise. How many 30-and-over do not exercise?

Two-way relative frequency tables (21–35)

21. 40 students: 24 like Math and 16 do not. Find the relative frequency (fraction) of students who like Math.
22. From 40 students, 10 like both Math and Science, 18 like Math. Find the relative frequency (decimal to two decimals) of students who like Math only.
23. 50 people: 30 are female, 20 male. Relative frequency of females (percent)?

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24. Of 60 surveyed, 15 are smokers, 45 non-smokers. What is the relative frequency of non-smokers as a decimal (two decimals)?
25. In a 50-person survey, 20 prefer apples, 30 prefer oranges. What is the relative frequency of apple preference (reduced fraction)?
26. Out of 80 people, 32 voted Yes, 48 No. What is relative frequency of Yes as percent?
27. 100 students: 40 in Band, 60 not. What is relative frequency of Band members as a decimal?
28. From 90 students, 27 take French. What is the relative frequency of students who do not take French (fraction)?
29. In a sample of 120, 36 own a bicycle. Relative frequency of bicycle owners as percent?
30. 50 students: 25 studied for more than 1 hour. What is the relative frequency of students who studied 1 hour as a decimal?
31. Survey of 200: 80 like chocolate, 120 do not. Relative frequency of those who like chocolate (fraction)?
32. Out of 75 students, 15 are in robotics. Relative frequency of not in robotics (decimal to two decimals)?
33. 40 people: 10 are both A and B, 18 are A (including overlap). Relative frequency of those who are A but not B (fraction)?
34. Of 60 students, 24 are left-handed. Relative frequency (percent) of left-handed students?
35. In a sample of 45, 9 are allergic to pollen. Relative frequency of allergic as a decimal (two decimals)?

Interpreting two-way tables (36–50)

(Use totals in each question as given.)

36. Table of 100: Male Yes 20, Male No 30, Female Yes 10, Female No 40. If a person is chosen at random, what is the probability they are female and do not smoke?
37. Using Q36, what fraction of smokers are male?
38. From Q36, what percent of the group smokes?
39. Table: 60 students by Grade and Tutoring: 8th Yes 15, 8th No 13, 7th Yes 9, 7th No 23. If a student is chosen at random, what is the relative frequency (decimal to two decimals) that they are in 7th grade and do not receive tutoring?
40. In a two-way table of 50 people, 30 like tea and 20 like coffee. If 12 like both, what is the probability a randomly chosen person likes tea only?
41. 80 people: Exercise Yes: 50 (30 males, 20 females); Exercise No: 30 (10 males, 20 females). What is the probability that a randomly chosen person is a male who exercises?
42. From Q41, what percent of females do not exercise?
43. 90 students; Math Passed 35, Math Failed 10, English Passed 30, English Failed 15. If a student is known to have failed, what fraction of failed students are in English?
44. 48 customers: Cash & New 8, Cash & Returning 12, Card & New 14, Card & Returning 14. What is the relative frequency (fraction) of customers who paid by card?
45. From Q44, what percent of new customers paid cash?



Math Worksheet for 8th Grade

Two-way tables

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46. 100 people by Age (<40 / 40) and Likes Jazz: <40 Yes 35, <40 No 15, 40 Yes 20, 40 No 30. If a person is chosen and they like jazz, what fraction are under 40?
47. 70 students by Breakfast ($\frac{Yes}{No}$) and Grade level ($\frac{8th}{7th}$). 8th & Yes 20, 8th & No 10, 7th & Yes 15, 7th & No 25. If a student is chosen, what is the probability they are an 8th grader who eats breakfast?
48. In a survey of 120, 72 own smartphones and 48 do not. If 30 of the smartphone owners are under 25 and 42 are 25 or older, what fraction of smartphone owners are under 25?
49. 200 people; 120 vaccinated, 80 not. Of vaccinated, 70 are female. What percent of the entire group are vaccinated females?
50. From Q49, if someone is chosen at random and there are 110 females total, what is the probability (fraction) a chosen female is vaccinated?