

## Two-Way Frequency Tables

A college surveyed 3,500 of its students to determine if the students preferred music, movies, or sports. The results of the survey are shown in the relative frequency table below.

	Music	Movies	Sports
Freshmen	0.06	0.10	0.09
Sophomores	0.09	0.05	0.10
Juniors	0.10	0.06	0.08
Seniors	0.08	0.09	0.10

How many more seniors than juniors were included in the survey?

- A 70
- B 105
- C 140
- D 175

A book club has 200 members. Each member was asked whether he or she prefers fiction or nonfiction books. The results are shown in the relative frequency table below.

Age	Fiction	Nonfiction	Total
21-30	0.32	0.11	0.43
31-40	0.38	0.19	0.57
Total	0.70	0.30	1.00

Which statement is true?

- A 6 more 31-40-year-olds than 21-30-year-olds prefer fiction.
- B 38 members are 31-40 and prefer fiction.
- C 43 members are 21-30 years old.
- D 140 members prefer fiction.

1. The students in a seaside school are to have extra swimming lessons if they cannot swim. The table below gives information about the students in grades 7, 8 and 9.

	Can swim	Cannot swim	Total
Grade 7	120	60	
Grade 8	168	11	
Grade 9	172	3	
Total			

	Can swim	Cannot swim	Total
Grade 7			
Grade 8			
Grade 9			
Total			

- a. Complete the table
- b. How many students need swimming lessons?
- c. How many students are there in 8<sup>th</sup> grade?
- d. How many of the 7<sup>th</sup> grade students cannot swim?
- e. How many students in grades 7 and 8 can swim?
- f. How many students are there altogether in grades 7, 8, and 9?
- g. Create a two-way relative frequency table for the above data.
- h. What is the relative frequency of students who are in 8<sup>th</sup> grade and cannot swim?
- i. What percentage of 9<sup>th</sup> grade students can swim?
- j. What percentage of students cannot swim?
- k. What percentage of students are 9<sup>th</sup> graders?

2. A principal of a school with 484 students collected information about how many of the students wear glasses.

	Always wears glasses	Sometimes wears glasses	Never wears glasses	Total
Boys	40		161	
Girls	36	55	144	
Total				

- Complete the table
- How many boys sometimes wear glasses?
- How many students wear glasses some of the time?
- How many students never wear glasses?
- Are there more boys or girls in the school?
- Create a two-way relative frequency table for the above data.
- What is the relative frequency of boys who sometimes wear glasses?
- What percentage of girls never wear glasses?
- What percentage of students are boys?
- What percentage of students always wear glasses?

3. Draw your own two-way table for the given information to answer the question.

In a class of 32 students, there were 8 girls who played basketball and 5 boys who did not.

- How many boys played basketball if there were 15 girls in the class?
- Create a two-way relative frequency table for the data.
- What is the relative frequency of girls who played did not play basketball?
- What percentage of boys played basketball?
- What percentage of students played basketball?
- What percentage of students are girls?