# 5.1 Frequency Tables

NOTES

ALGEBRA

Write your questions here!

What is your favorite soft drink?

**Categorical Data**

**TWO WAY FREQUENCY TABLE**

| | Coke | Dr Pepper | Sprite | Mountain Dew |
|---|---|---|---|---|
| **High School** | **18** | **12** | **4** | **13** |
| **Middle School** | **12** | **10** | **6** | **28** |

Which Wednesday afterschool activity are you involved in?

**TWO WAY FREQUENCY TABLE**

| | | ACTIVITY | | | | |
|---|---|---|---|---|---|---|
| | | **Basketball** | **Math Club** | **Band** | **Not Involved** | **Total** |
| **GENDER** | **Male** | **30** | | | **50** | **98** |
| | **Female** | | **26** | **14** | **30** | |
| | **Total** | **42** | | **22** | | |

How many students are surveyed?

How many students are in math club?

## RELATIVE FREQUENCY TABLE

| | | ACTIVITY | | | | |
|---|---|---|---|---|---|---|
| | | **Basketball** | **Math Club** | **Band** | **Not Involved** | **Total** |
| **GENDER** | **Male** | | | | | |
| | **Female** | | | | | |
| | **Total** | | | | | |

What percent of students surveyed are Male?

What percent of students surveyed are Females in Basketball?

**TWO WAY FREQUENCY TABLE**

| | | AGE | | | | |
|---|---|---|---|---|---|---|
| | | 12-13 | 14-15 | 16-17 | 18-19 | Total |
| Share a Computer | Yes | 40 | 47 | 42 | 22 | 151 |
| | No | 10 | 25 | 36 | 34 | 105 |
| | Total | 50 | 72 | 78 | 56 | |

# ASSOCIATION

**CONDITIONAL RELATIVE FREQUENCY TABLE**

**Given a student's age, find the conditional relative frequency the student shares a computer.**

| | | AGE | | | | |
|---|---|---|---|---|---|---|
| | | 12-13 | 14-15 | 16-17 | 18-19 | Total |
| Share a Computer | Yes | | | | | |
| | No | | | | | |
| | Total | | | | | |

Suppose you select a person at random, if the person is 15 years old, do you think that they share a computer?

SMP #2

**CONDITIONAL RELATIVE FREQUENCY TABLE**

**Given a student shares a computer, find the conditional relative frequency of the student's age.**

| | | AGE | | | | |
|---|---|---|---|---|---|---|
| | | 12-13 | 14-15 | 16-17 | 18-19 | Total |
| Share a Computer | Yes | | | | | |
| | No | | | | | |
| | Total | | | | | |

Suppose you select a person at random, if the student shares a computer, how likely are they to be 16-17 years old?

## SUMMARY:

Now, summarize your notes here!

# 5.1 Frequency Tables

PRACTICE

**Use the survey results to make a two table. Include marginal frequency.**

1. Bob asked students what grade they got on a math test and did they study for the math test?

   Students with an A: 17 studied and 4 did not

   Students with a B: 14 studied and 8 did not

   Students with a C: 9 studied and 13 did not

   Students with a D: 2 studied and 6 did not

   Students with a F: 1studied and 3 did not

| | | | | | | Total |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| Total | | | | | | |

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2. Sarah inventoried the cars on a dealership's lot.

   Hondas: 14 new and 12 used

   Fords: 12 new and 4 used

   Chryslers: 8 new and 4 used

   BMW: 12 new and 1 used

**Fill in the missing cells of the two way frequency tables.**

3.

**Favorite Cafeteria Food**

| People | Pizza | Taco | Burger | Total |
|---|---|---|---|---|
| **Teachers** | 12 | | 21 | 65 |
| **Students** | | 66 | | 220 |
| **Total** | 132 | | | |

4.

**Color of hair**

| Hand Preference | Brown | Blonde | Red | Total |
|---|---|---|---|---|
| **Left** | 30 | 16 | | 50 |
| **Right** | | 118 | 2 | 230 |
| **Either** | 10 | | 2 | |
| **Total** | | | 8 | 300 |

**Convert the two way frequency tables from above into relative frequency tables.**

5.

**Favorite Cafeteria Food**

| People | Pizza | Taco | Burger | Total |
|---|---|---|---|---|
| **Teachers** | | | | |
| **Students** | | | | |
| **Total** | | | | |

a. How many people were surveyed?

b. What percent prefer Tacos?

c. What cafeteria food do students prefer?

6.

**Color of hair**

| Hand Preference | Brown | Blonde | Red | Total |
|---|---|---|---|---|
| **Left** | | | | |
| **Right** | | | | |
| **Either** | | | | |
| **Total** | | | | |

a. What percent are left handed?

b. What hand do Blondes prefer?

**Use the two way frequency table to answer the following.**

7.

| MUSIC TYPE | GENDER: Male | Female | Total |
|---|---|---|---|
| Punk | 24 | 10 | 34 |
| Techno | 4 | 1 | 5 |
| Classic | 18 | 12 | 30 |
| Metal | 9 | 8 | 17 |
| Total | 55 | 31 | 86 |

a. What type of music do females like most?

b. What is the most popular type of music among men and women?

c. What is the least favorite music for men?

d. How many people were surveyed?

e. For which gender was the response greater?

f. What percent of the participants were female?

**Finish converting the two way frequency table above into a conditional frequency table described below.**

8. Given a person's gender find the conditional relative frequency of the person's music type.

| Music Type | Gender: Male | Female | Total |
|---|---|---|---|
| **Punk** | $\frac{24}{55} = .436$ | | |
| **Techno** | | | |
| **Classic** | | | $\frac{30}{86} = .348$ |
| **Metal** | | | |
| **Total** | $\frac{55}{55} = 1$ | | |

a. What percent of Male's prefer Metal?

b. What percent of Female's prefer Punk?

9. Given a person's music type find the conditional relative frequency of the person's gender.

| Music Type | Gender: Male | Female | Total |
|---|---|---|---|
| **Punk** | | | |
| **Techno** | | $\frac{1}{5} = 0.2$ | |
| **Classic** | | | |
| **Metal** | | | |
| **Total** | | | |

a. Given a person prefers Punk music, what percent are Male?

b. If you randomly selected a person that prefers Classic music, what is the probability the person is female?

10. Is there an association between gender and music preference? Construct a viable argument to support.

**SMP #2**

**Use the two way frequency table to answer the following.**

11. A school newspaper surveyed the student body for an article about club membership. The table below shows the students' club membership by grade level.

| Grade Level | # of clubs involved in: 0 clubs | 1 club | 2 clubs | 3 or more |
|---|---|---|---|---|
| $9^{th}$ | 52 | 16 | 8 | 2 |
| $10^{th}$ | 34 | 26 | 12 | 4 |
| $11^{th}$ | 28 | 21 | 14 | 9 |
| $12^{th}$ | 22 | 28 | 16 | 16 |

a. What percent of freshmen are in 1 or more clubs?

b. What percent of the school body is involved in 2 clubs?

c. Given a student is involved in 3 or more clubs, what percent are in $12^{th}$ grade?

**Solve the following.**

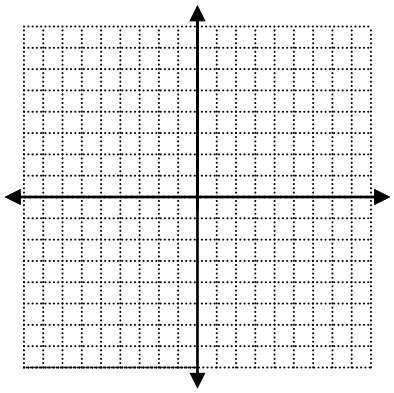
12. $4y - 2(y + 1) = 10$

13. $\frac{10}{3x} = 2$

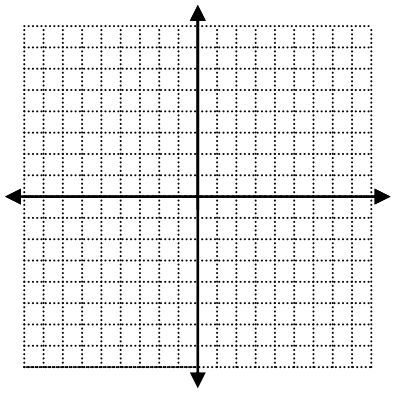
14. $2x - 3y = 12$
$x = y + 1$

**Graph the following.**

15. $y > \frac{x}{2} - 3$



16. $2x - 3y = 12$
$x = 3$



## 5.1 Frequency Tables

WRAP UP

1. 182 Freshmen were surveyed on whether they participate in a sport. 110 said yes, 40 boys said no, 90 girls were in the survey.
   a. Create a two way frequency table and include marginal frequency.

   b. What is the relative frequency of girls that play sports?

2. A random sample of 200 teenagers particpated in a taste test. Each teenager sampled four choice of fruit drink (labeled A, B, C, and D) and then wereasked to pick a favorite. The table shows the results of this taste test.

| | A | B | C | D | Total |
|---|---|---|---|---|---|
| Boys | 45 | 25 | 30 | 20 | 120 |
| Girls | 25 | 10 | 30 | 15 | 80 |
| Total | 70 | 35 | 60 | 35 | 200 |

Based on the information given, which of the given statements are true?

Select **ALL** that apply.

A. 40% of the participants were girls.

B. 70% of the participants preferred A.

C. $\frac{20}{120}$ of the boys preferred D.

D. $\frac{10}{35}$ of the participants who preferred B were girls.

E. The proportion of boys who preffered C is equal to the proportion of girls who prefered C

**EXIT TICKET**

**Your birthday is coming up and you want to throw the best party ever. You decide to survey your friends to find out their favorite type of party.**

| | | Gender | | |
|---|---|---|---|---|
| | | **Male** | **Female** | **Total** |
| **Party Type** | Bowling | 6 | 2 | 8 |
| | Skating | 3 | 11 | 14 |
| | Dancing | 1 | 3 | 4 |
| | Total | 10 | 16 | 26 |

SMP #3

**What type of party should you plan? Construct a viable argument to support.**