

Warm Up:

You are playing cards with your friends. Find...

1. P(5 or 6) $\frac{4}{52} + \frac{4}{52} = \frac{8}{52} = .15$

2. P(5 or heart) $\frac{4}{52} + \frac{13}{52} - \frac{1}{52} = \frac{16}{52} = .31$

3. You draw a card and then replace it in the deck.

P(5 and 6) $\frac{4}{52} \cdot \frac{4}{52} = \frac{16}{2704} = .01$

4. You draw a card and do not replace it in the deck.

P(5 and 6) $\frac{4}{52} \cdot \frac{4}{51}$

Learning Goal: Today I will learn about frequency tables.

Success Criteria: I am able to interpret and create a two way frequency table.

Two Way Frequency Tables

Two Way Frequency Table

- compares data from two different categories that are related, such as gender and eye color.
- each entry is called "joint frequency"
- each total entry is called "marginal frequency"

Two Way Frequency Table

What color are your eyes?

		Eye Color				
		Blue	Green	Brown	Hazel	Total
Gender	Male	2	2	6	1	
	Female	5	1	7	2	
	Total					

Joint Frequency

Marginal Frequency

Calculate the following probabilities:

$$P(\text{brown}) = \frac{13}{26} = .5$$

$$P(\text{green}) = \frac{3}{26} = .12$$

$$P(\text{female}) = \frac{15}{26} = .58$$

$$P(\text{female with brown eyes}) = \frac{7}{15} = .46$$

$$P(\text{male with blue eyes}) = \frac{2}{11}$$

		Student	
		Studied	Did Not Study
Grade	Passed	21	2
	Failed	1	6

joint frequency

How many students studied but did not pass? 1

How many students did not study and failed? 6

		Student		Total
		Studied	Did Not Study	
Grade	Passed	21	2	23
	Failed	1	6	7
Total		22	8	30

23 students passed.

7 students failed.

30 students were surveyed.

22 students studied.

8 students did not study.

What is the probability that a student studied but did not pass? $\frac{1}{22} = .05$

What is the probability that a student did not study and failed? $\frac{6}{8} = .75$

Two Way Frequency Tables

PETS You randomly survey students in your school about whether they own a pet. The results are shown in the tally sheets. Make a two-way table that includes the marginal frequencies.

		Own a Pet	
		Owner	Tally
Gender	Male	10	
	Female	4	

		Don't Own a Pet	
		Owner	Tally
Gender	Male	12	
	Female	6	

Two Way Frequency Tables

What is the probability that a random person is a male who owns a pet?

$$\frac{18}{63}$$

What is the probability that a person owns a pet **given that** he's male?

$$\frac{18}{43}$$

What is the probability that a person does not own a pet **given that** she's female?

$$\frac{14}{20}$$



Closure: Today I learned how to create and interpret two way frequency tables.

