Distributions in Two-way Tables

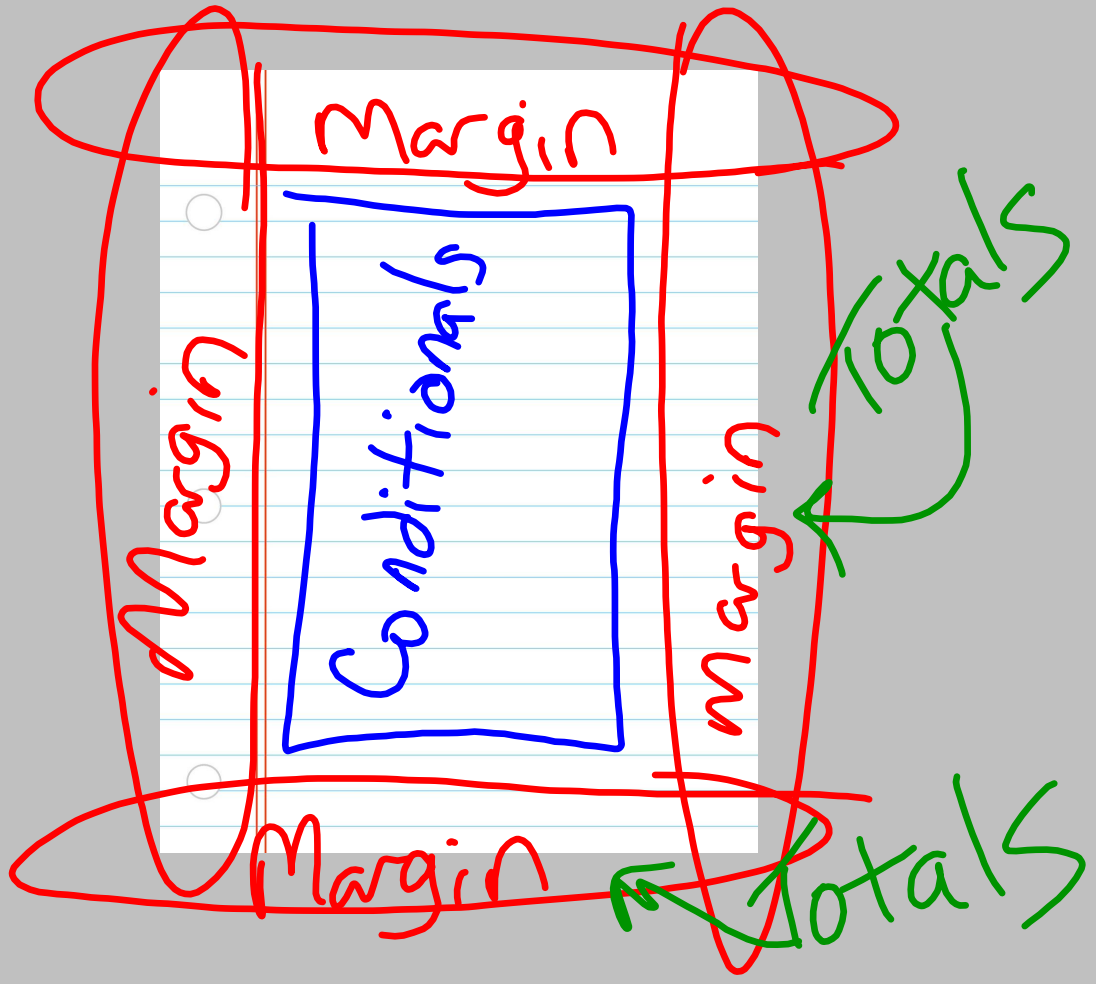
- Topic: Marginal and Conditional Distributions

- Objective: Students will be able to identify and complete marginal and conditional distribution problems.

- Standards: AP Stats: UNC-1 (EU), UNC-1.P (LO), UNC-1.P.1 (EK), UNC-1.Q (LO), UNC-1.Q.1 (EK), UNC-1.Q.2 (EK)

Distributions in Two-way Tables

- Marginal -vs- Conditional Distributions



Distributions in Two-way Tables

- Identifying Marginal and Conditional Distributions

- Example 1: James is interested in the relationship between weather conditions and train delays. For a year, James records the conditions each day as well as whether this train arrives on time or is delayed. Here are his results:

Weather condition	On-time	Delayed	Total
Sunny	167	3	170
Cloudy	115	5	120
Rainy	40	15	55
Snowy	8	12	20
Total	330	35	365

Conditional

A) This is the marginal distribution of arrival status.

B) This is the marginal distribution of weather type.

C) This is the conditional distribution of weather type for delayed trains.

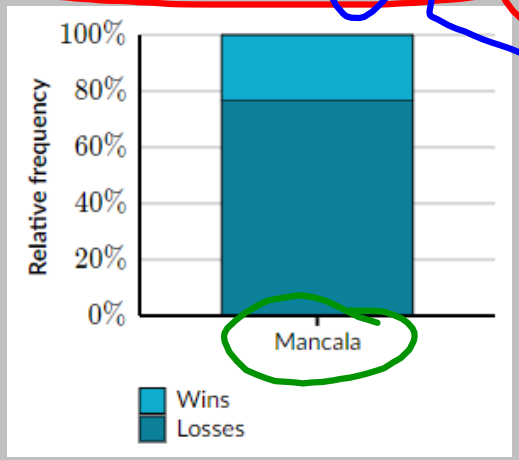
D) This is the conditional distribution of arrival status for rainy weather.

Distributions in Two-way Tables

- Identifying Marginal and Conditional Distributions

- Example 2: Ajay has been recording his outcomes for three games that he has played this summer. Here is his data:

Game	Wins	Losses	Total
Chess	5	8	13
Checkers	9	2	11
Mancala	3	10	13
Total	17	20	37



The graph of which distribution is shown below?

A) The conditional distribution of outcomes for games played of mancala.

B) This is the marginal distribution of outcomes.

C) The conditional distribution of games played for losses.

D) The marginal distribution of games played.

Distributions in Two-way Tables

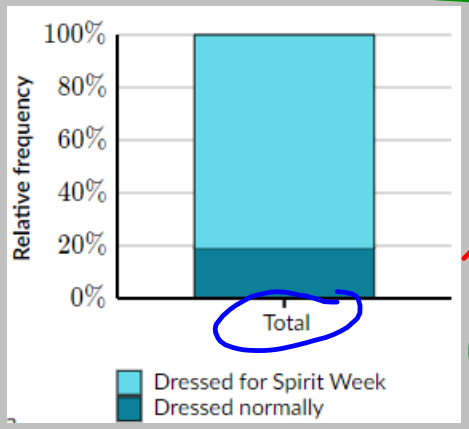
- Identifying Marginal and Conditional Distributions

- Example 3: Each day of Spirit Week at Alek's school, students have the option of dressing up according to a different theme. On Tuesday of Spirit Week, Alek recorded the number of students at his school by class and style of dress. Here is his data:

Class	Dressed for Spirit Week	Dressed normally	Total
Freshman	175	73	248
Sophomore	160	38	198
Junior	184	47	231
Senior	177	3	180
Total	696	161	857

Classes

Type of dress



The graph of which distribution is shown below?

A) The marginal distribution of class.

B) The conditional distribution of class for students dressed for Spirit Week.

C) The marginal distribution of style of dress.

D) The conditional distribution of style of dress for juniors.

Marginal and Conditional Distributions

You should be working on the following skills:

1. Identifying marginal and conditional distributions
2. Marginal distributions
3. Conditional distributions