Two-Way Frequency Tables

Marginal Vs. joint Frequencies

Joint (body) *marginal*

	Play Daily	Play Occasionally	Total
Boys	16	8	24
Girls	4	12	16
Total	20	20	40

Marginal Frequencies: Entries in the total row and total column
Example

Joint Frequencies: Entries in the body of the table
Example

out of the total amt.

Marginal Vs. joint Frequencies

	Play Daily	Play Occasionally	Total
Boys	16	8	24
Girls	4	12	16
Total	20	20	40

	Play Daily	Play Occasionally	Total
Boys	0.4	0.2	.6
Girls	0.1	0.3	.4
Total	0.5	.5	1

$\frac{16}{40}$ $\frac{4}{40}$ $\frac{20}{40}$

$\frac{8}{40}$ $\frac{12}{40}$ $\frac{20}{40}$

 # of

Conditional Frequencies

	Play Daily	Play Occasionally	Total
Boys	16	8	24
Girls	4	12	16
Total	20	20	40

	Play Daily	Play Occasionally	Total
Boys	.67	.3	1
Girls	.25	.75	1
Total			

$\frac{16}{24}$ $\frac{8}{24}$

$\frac{24}{24}$

Interpreting the table

	Play Daily	Play Occasionally	Total
Boys	16	8	24
Girls	4	12	16
Total	20	20	40

1) What percentage of students play daily?
2) What percentage of girls play daily?
3) Of the boys surveyed, what percentage played daily?

$\frac{20}{40} = \boxed{50\%}$

$\frac{4}{16} = \boxed{25\%}$

$\frac{16}{24} = \boxed{67\%}$

Twenty students were asked which type of music they like best. Three boys said hip-hop, four boys said jazz, and two boys said rock. Six girls said hip-hop, one girl said jazz, and four girls said rock. Create a two-way joint frequency table for the data.

	HH	J	R	Total
Boys	3	4	2	9
Girls	6	1	4	11
Total	9	5	6	20

Set Theory

Basic Set Concepts

A "set" is a collection of objects. Each object is called an "element" of the set.

Often the objects in a set are listed and are enclosed in "braces." **{ }**

For example the set of integers between 1 and 5 can be written {2 , 3 , 4}.

The Empty Set /Null

The empty set, also called the **null set**, is the set that contains no elements.

The empty set is represented by
{ } or ∅

{ } or ∅

Elements of a set

- The symbol ∈ is used to indicate that an object is an element of a set. The symbol is used to replace the words "is an element of"
- The symbol ∉ is used to indicate that an object is not an element of a set. The symbol is used to replace the words "is not an element of"

Definition of a Universal Set

A "universal set" is one that contains all of the elements that are included in the discussion.

$$\mathcal{U} =$$

Definition of the Complement of a Set

The "complement" of a set is the collection of all the objects in the universal set that are not in the given set.

The complement of a set A is written A'.

$A' \leftarrow$ complement

everything except for Set A.

* Compare A to the universal set.