

Name _____
 Block 1

Date 9-19-11
 Integrated Algebra Unit 1

Interval Notation

Say it four different ways!

"The set of integers from 2 through 7, inclusive"

- Roster form: $\{2, 3, 4, 5, 6, 7\}$
- Set notation: $\{x \mid 2 \leq x \leq 7\}$
- Interval notation: $[2, 7]$

NEW!

An Interval is: a set of numbers with 2 boundary points
 Interval Notation is: another way to describe a set of numbers

(Note: with intervals, we always are working with all real numbers, unless we are told otherwise)

If the last number in an interval is included, we use the following symbols: $[]$

For example, the set $4 \leq x \leq 7$ would include the numbers 4 and 7, so for this case, we write the following:

$[4, 7]$

Think of the capital letter I ...
 Those numbers are included!



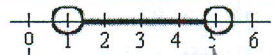
If the last number in the set is NOT included, we use these symbols: $()$

$()$

The set $\{x: 1 < x < 5\}$ does NOT include one and 5, so we write:

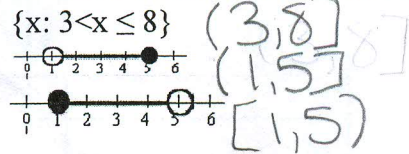
$(1, 5)$

Think of the OPEN circle on a number line... Those numbers are NOT included!

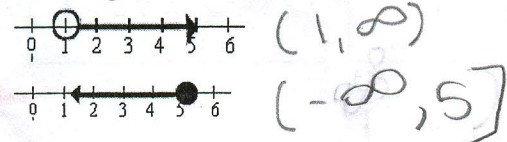


If one number is included in the set and the other is not, we can mix and match $[)$ or $(]$

For example,
 Use interval notation to write the following:



If a set goes on forever in either direction, use the infinity sign with a parenthesis!



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MATHEMATICAL NOTATION

Fill in the following diagram:

Line Graph	Set Builder Notation	Interval Notation
	$\{x \mid -2 \leq x \leq 5\}$	$[-2, 5]$
	$\{x \mid x \leq 3\}$	$[-\infty, 3)$
	$\{x \mid -3 \leq x < 6\}$	$[-3, 6)$
	$\{x \mid x \leq 5\}$	$(-\infty, 5]$
	$\{x \mid x > 5\}$	$(5, \infty)$
	$\{x \mid -2 \leq x < 5\}$	$[-2, 5)$

only 1 number
 $\{x \mid x \leq 3\}$

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Integrated Algebra

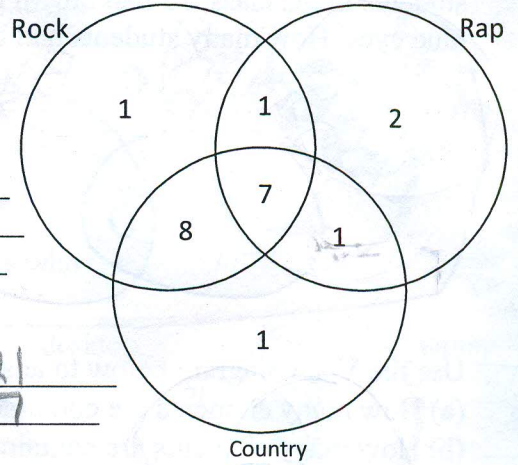
Unit 1 Notes

Venn Diagrams

Venn diagram: a diagram used to represent combinations of sets.

Interpret the Venn Diagram below.

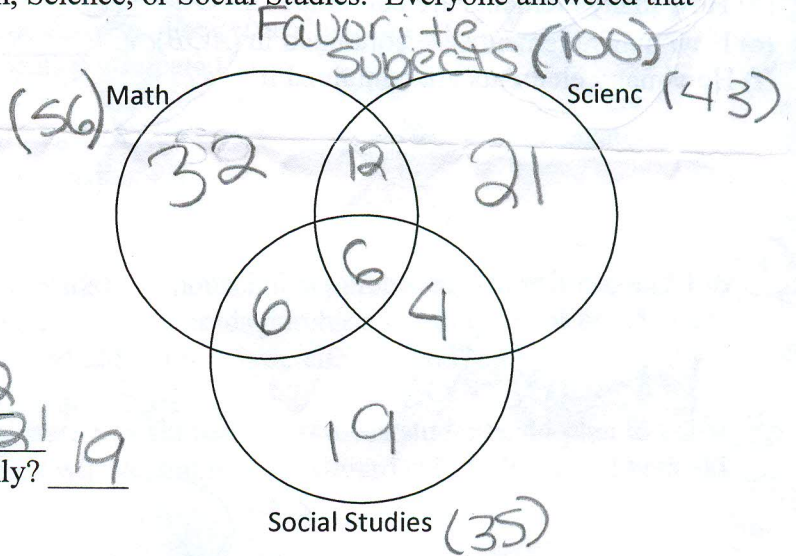
- How many total people are represented in the diagram? 21
- How many people like country? 17
- How many people are in the set $Rock \cup Rap$? 20
- How many people are in the set $Country \cup Rap$? 20
- How many people are in the set $Country \cup Rock$? 19
- How many people are in the set $Rock \cap Country$? 15
- How many people are in the set $Rock \cap Rap$? 8
- How many people are in the set $Rap \cap Country$? 8
- How many people are in the set $Country \cup Rap \cup Rock$? 21
- How many people are in the set $Rap \cap Country \cap Rock$? 7



Fill in the Venn Diagram below.

100 people were asked if they liked Math, Science, or Social Studies. Everyone answered that they liked at least one.

- 56 like Math
- 43 like Science
- 35 like Social Studies
- 18 like Math and Science
- 10 like Science and Social Studies
- 12 like Math and Social Studies
- 6 like all three subjects



- How many people like Math only? 32
- How many people like Science only? 21
- How many people like Social Studies only? 19

Create a Venn Diagram

A soft-drink company wanted to see which of two new drinks its consumers would prefer. To find out, the company surveyed 400 people who had tried both new drinks. 254 of the people surveyed liked drink A, 136 liked both drinks A and B, and 42 people liked neither. Which of the two drinks was preferred by the larger number of people?

