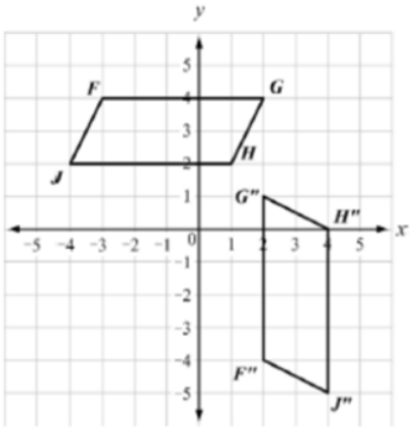
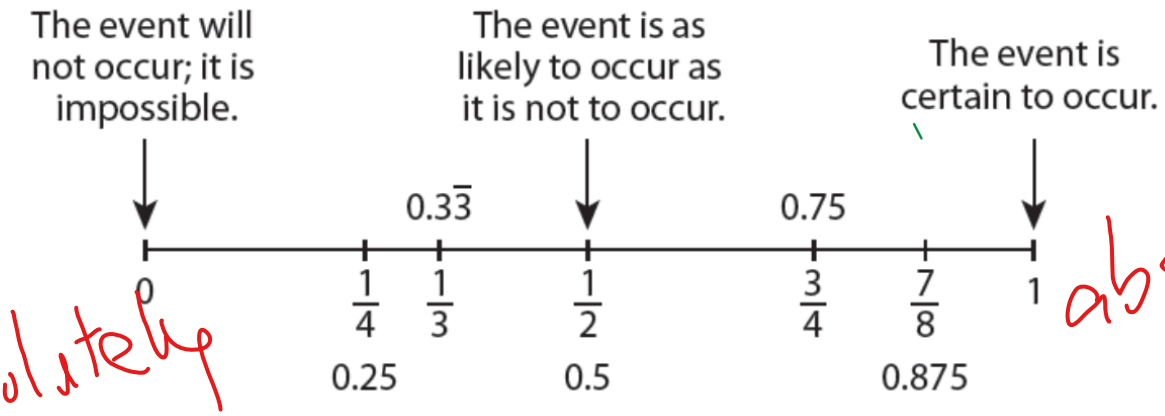
Parallelogram FGHJ was translated 3 units down to form parallelogram F'G'H'J'. Parallelogram F'G'H'J' was then rotated 90° counterclockwise about point G' to obtain parallelogram F"G"H"J". Which statement is true about parallelogram FGHJ and parallelogram F"G"H"J"?

A. The figures are both similar and congruent.
B. The figures are neither similar nor congruent.
C. The figures are similar but not congruent.
D. The figures are congruent but not similar.



Probability

- A number from 0 to 1
- As a percent from 0% to 100%
- Indicates how likely an event will occur



absolutely not

absolutely

50%

Experiment

- Any process or action that has observable results.

- *Example: drawing a card from a deck of cards is an experiment*

Outcomes

- Results from experiments
- *Example: all the cards in the deck are possible outcomes*

Sample Space

- The set (or list) of all possible outcomes.
  - Also known as the universal set
  - *Example: listing out all the cards in the deck would be the sample space*

Event

- A subset of an experiment
- An outcome or set of desired outcomes
  - *Example: drawing a single Jack of hearts*

P(drawing J♥)

Set

- List or collection of items

All even numbers from 1-10.

{2, 4, 6, 8, 10}

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Subset

- List or collection of items all contained within another set
- Denoted by $A \subset B$, if all the elements of A are also in B.

subset

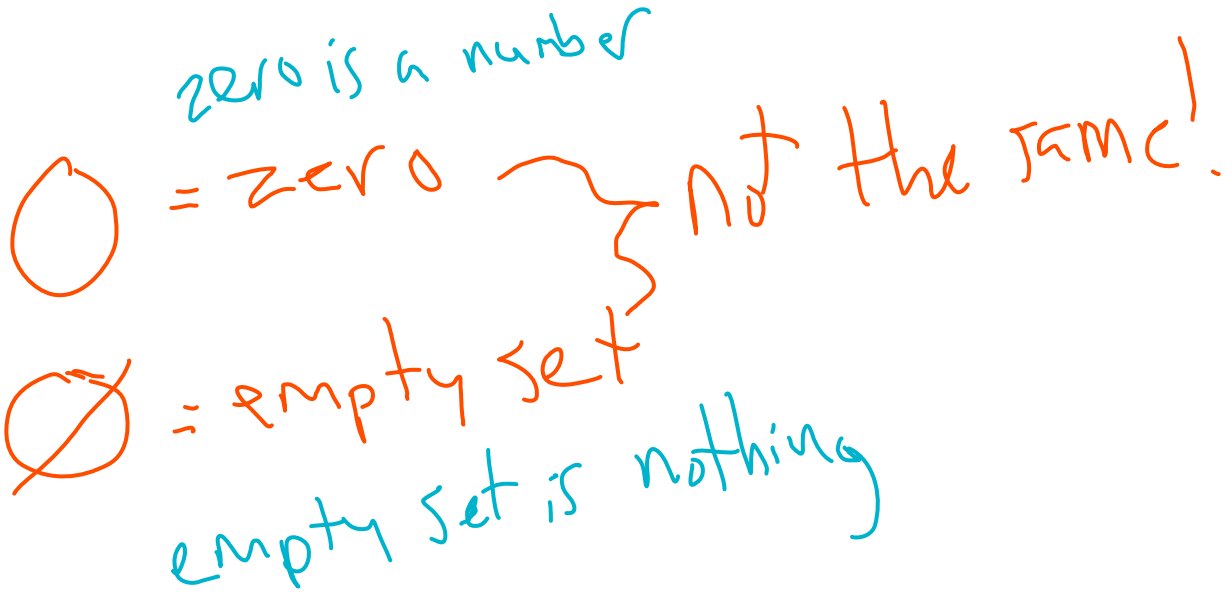
$B = \{1, 2, 3, 4, 5\}$

$A = \{2, 4\}$

$A \subset B$ everything of A is part of B.

Empty Set

- A set that has NO elements
- Also called a **null set**.
- Denoted by ∅



"U" shape!

Union

- Denoted by ∪
- To unite
- Everything in **both** sets
  - This OR That
  - either

∩ -tersection

Intersection

- Denoted by ∩
- Only what the sets **share** in common

- AND
- overlap

90° complement

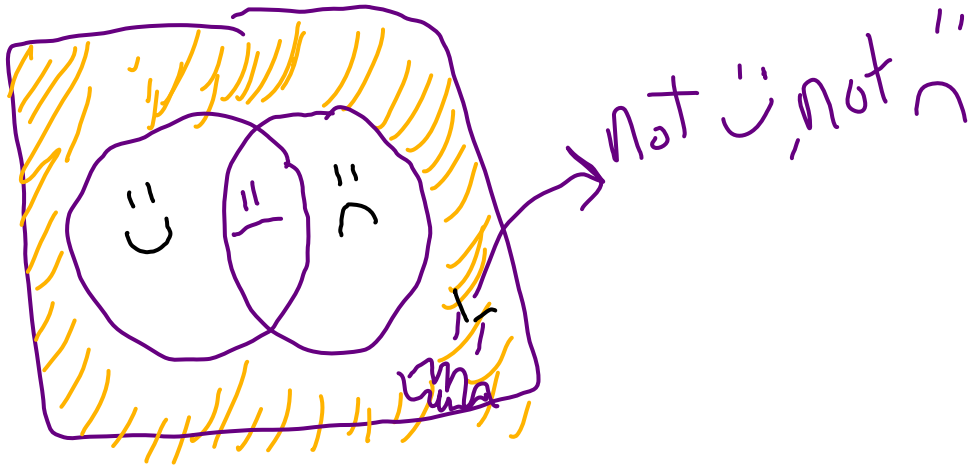
" not "

Complement

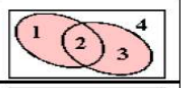
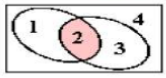
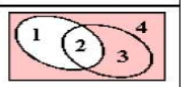
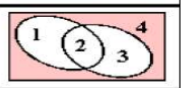
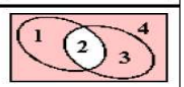
- Denoted 2 different ways

A' or $\overline{A}$

- Everything OUTSIDE of this set



Set Notation Handout

Set Notation	Pronunciation	Meaning	Venn Diagram
$A \cup B$	"A union B"	Everything in both sets	
$A \cap B$	"A intersect B"	Only what is in common with both sets	
$\overline{A}$ or A'	"A complement"	Everything NOT in set A	
$(A \cup B)'$	"not A union B"	Everything NOT in set A and set B	
$(A \cap B)'$	" not A intersect B"	Everything NOT in common between set A and set B	

Answer

Hector has entered the following names in the contact list of his new cellphone: Alicia, Brisa, Steve, Don, and Ellis.

B: The name begins with a vowel.

E: The name ends with a vowel.

1. List the outcomes of B.

$B = \{Alicia, Ellis\}$

2. $E = \{Alicia, Brisa, Steve\}$

3. $B \cap E = \{Alicia\}$

Hector has entered the following names in the contact list of his new cellphone: Alicia, Brisa, Steve, Don, and Ellis.

B: The name begins with a vowel.

E: The name ends with a vowel.

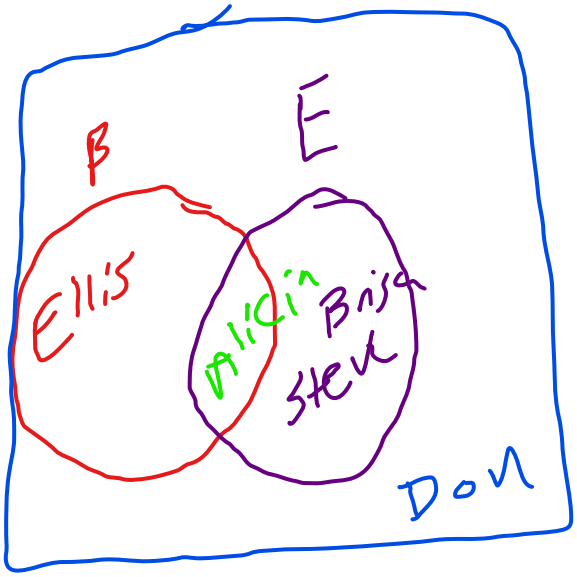
2. List the outcomes of E.

Hector has entered the following names in the contact list of his new cellphone: Alicia, Brisa, Steve, Don, and Ellis.

B: The name begins with a vowel.

E: The name ends with a vowel.

3. List the outcomes of B∩E.



Venn Diagram

Hector has entered the following names in the contact list of his new cellphone: Alicia, Brisa, Steve, Don, and Ellis.

B: The name begins with a vowel.

E: The name ends with a vowel.

4. Draw a venn diagram to represent this.

Hector has entered the following names in the contact list of his new cellphone: Alicia, Brisa, Steve, Don, and Ellis.

B: The name begins with a vowel.

E: The name ends with a vowel.

5. List the outcomes of B∪E.

B ∪ E = {Ellis, Alicia, Brisa, Steve}

union

Hector has entered the following names in the contact list of his new cellphone: Alicia, Brisa, Steve, Don, and Ellis.

B: The name begins with a vowel.

E: The name ends with a vowel.

6. List the outcomes of B'.

not B

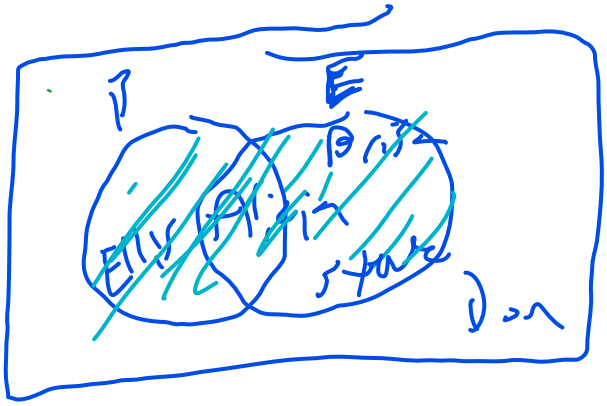
$B' = \{Brisa, Steve, Don\}$

Hector has entered the following names in the contact list of his new cellphone: Alicia, Brisa, Steve, Don, and Ellis.

B: The name begins with a vowel.

E: The name ends with a vowel.

7. List the outcomes of (B∪E)'.



$(B \cup E)' = \{Don\}$

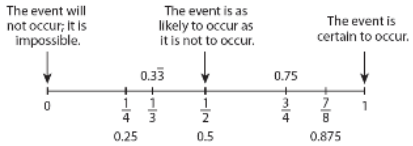
Guided Notes Unit 6 – Probability

Name: _____ Date: _____

Vocabulary, Set Notation, & Venn Diagrams

Probability

- A number from 0 to 1
- As a percent from _____ to _____
- Indicates how likely an _____will occur.



Experiment

- Any process or action that has observable results
- Example: _____

Outcomes

- _____
- Example: _____

Sample Space

- The set (or list) of _____
- Also known as the _____ _____
- Example: _____

Event

- A subset of an _____
- An outcome or _____
- Example: _____

Set

- _____

Subset

- List or collection of _____ all contained within another set.
- Denoted by _____ if all the elements of A are also in B.

GSE Geometry | Unit 6 – Probability | 6.2 – Notes

Empty Set

- A set that has _____ _____
- Also called a _____ _____
- Denoted by _____

Union

- Denoted by ∪
- To unite
- Everything in _____ sets

If I'm included in any way, then I'm cool!

Intersection

- Denoted by ∩
- Only what the sets _____ in common.

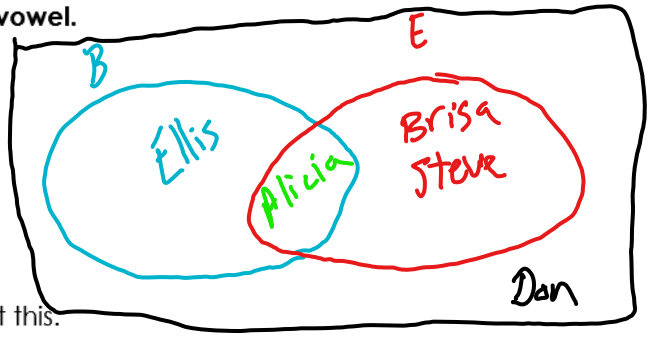
Only in the overlap am I cool.

Complement

- Denoted two different ways: _____ or _____
- Everything _____ of this set

Hector has entered the following names in the contact list of his new cellphone. Alicia, Brisa, Steve, Don, and Ellis. Two sets are determined. Set B: Names that begin with a vowel and Set E: Names that end with a vowel.

1. List the outcomes of B.
   {Alicia, Ellis}
2. List the outcomes of E.
   {Alicia, Brisa, Steve}
3. List the outcomes of B∩E.
   {Alicia}
4. Draw a venn diagram to represent this.



5. List the outcomes of B∪E.
   {Alicia, Ellis, Brisa, Steve}
6. List the outcomes of B'.
   {Brisa, Steve, Don}
7. List the outcomes of (B∪E)'.
   {Don}

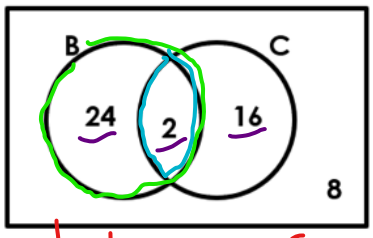
not B, not E

GSE Geometry Unit 6 – Probability 6.2 Practice

Name: _____ Date: _____

Using Venn Diagrams

If the Venn Diagram below shows the number of people in a fine arts club who are in band (B) and choir (C), make the following determinates:



50 1. How many people are in the club?

26/50 = 13/25 2. Find P(B)

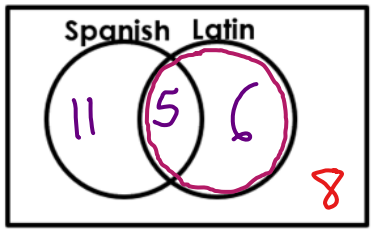
2/50 = 1/25 3. Find P(B ∩ C)

42/50 = 21/25 4. Find P(B ∪ C)

_____ 5. Find P(B)'

A guidance counselor is planning schedules for 30 students. 16 want to take Spanish and 11 want to take Latin. 5 Say they want to take both. Display this information on the Venn Diagram below.

6.



5/30 = 1/6 7. Find P(S ∩ L)

_____ 8. Find P(L)

11+6/30 = 17/30 9. What is the probability that a student studies at least one subject? P(S ∪ L)

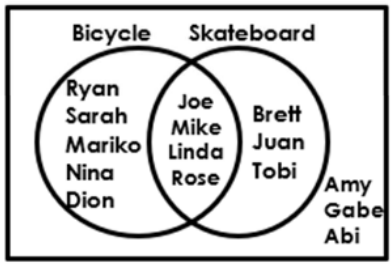
_____ 10. What is the probability that a student studies exactly one subject?

8/30 = 4/15 11. What is the probability that a student studies neither subject? P(S ∪ L)'

5/11 12. What is the probability that a student studied Spanish if it is known that the student studies Latin?

GSE Geometry | Unit 6 – Probability | 6.2 Practice

Mr. Leary's Class: Use the Venn Diagram showing the number of kids owning bicycles (A) and skateboards (B) to find the following probabilities.

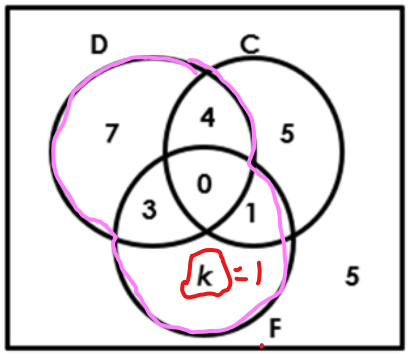


4/15 ____ 13. Find P(A ∩ B) and describe what this probability represents? overlap

12/15 ____ 14. Find P(A ∪ B) and describe what this probability represents?

3/15 ____ 15. Find P(A ∪ B)' and describe what this probability represents? "outsiders"

The Venn Diagram below shows the results of a survey done by a veterinarian about the types of pets owned by 26 clients. The survey was only related to dogs (D), cats (C), and fish (F).



1 ____ 16. What is the value of k?

17. How did you determine the value?

subtract from total

26 − 7 − 4 − 5 − 3 − 1 = 1

If a randomly selected member is asked their preference, what is the probability that the member has:

↳ divide by total

7/26 ____ 18. Only dogs?

21/26 = 8/13 ____ 19. Dogs and cats? ∩

____ 20. None of these animals?

21/26 ____ 21. At least one of these pets?

____ 22. All of the pets?

3/26 ____ 23. Fish and dogs, but not cats? F ∩ D ∩ C'

16/26 = 8/13 ____ 24. Fish or dogs? ∪