

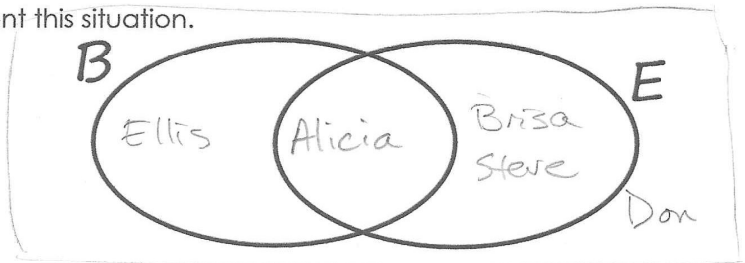
Set Notation	Pronunciation	Meaning	Venn Diagram	Answer
OR $A \cup B$	"A union B" <i>all of A + B</i>	Everything in both sets; to unite; Used in OR problems		$\{1, 2, 3\}$
AND $A \cap B$	"A intersect B" <i>overlapping only parts</i>	Only what is in common with both sets; Used in AND problems		$\{2\}$
\bar{A} or A'	"A complement" <i>outside of A</i>	Everything NOT in set A		$\{3, 4\}$
$(A \cup B)'$	"not A union B" <i>outside of A union B</i>	Everything NOT in set A or set B		$\{4\}$
$(A \cap B)'$	"not A intersect B" <i>outside of the overlap</i>	Everything NOT in common between set A and set B		$\{1, 3, 4\}$

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

1. Draw a Venn diagram to represent this situation.

B: The name begins with a vowel

E: The name ends with a vowel



2. List the outcomes of B.

$$B = \{\text{Ellis, Alicia}\}$$

4. List the outcomes of $B \cap E$. *intersection (overlap only)*

$$B \cap E = \{\text{Alicia}\}$$

6. List the outcomes of B' .

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

3. List the outcomes of E.

$$E = \{\text{Alicia, Brisa, Steve}\}$$

5. List the outcomes of $B \cup E$. *union (all)*

$$B \cup E = \{\text{Ellis, Alicia, Brisa, Steve}\}$$

7. List the outcomes of $(B \cup E)'$.

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

YOU TRY: Find the union and intersection of the following sets:

1. $A = \{1, 2, 3, 4, 5\}$
 $B = \{1, 2, 9\}$

2. $M = \{\text{PS3, Xbox, Wii}\}$
 $N = \{\text{Wii, Xbox, PS3, PSP, DS}\}$

3. $S = \{\text{Tiger, Lion, Leopard, Cougar}\}$
 $T = \{\text{Wolf, Hyena, Rottweiler}\}$

$$A \cup B = \{1, 2, 3, 4, 5, 9\}$$

$$M \cup N = \{\text{PS3, Xbox, Wii, PSP, DS}\}$$

$$S \cup T = \{\text{Tiger, Lion, Leopard, Cougar, Wolf, Hyena, Rottweiler}\}$$

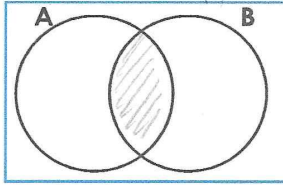
$$A \cap B = \{1, 2\}$$

$$M \cap N = \{\text{PS3, Xbox, Wii}\}$$

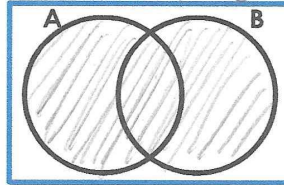
$$S \cap T = \{\emptyset\}$$

Shade in the appropriate area of the Venn Diagram.

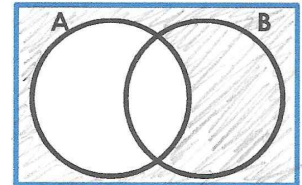
1. $A \cap B$ intersection
- overlap, share



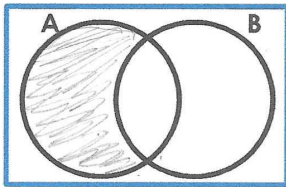
2. $A \cup B$ union
Everything A and B



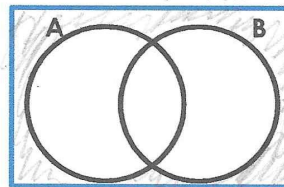
3. A' A complement
Everything not A



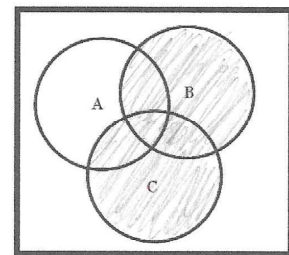
4. $A \cap B'$ where does A overlap with not B



5. $(A \cup B)'$ Everything Not in A and B



6. $B \cup C$



Mr. Grisham took a poll of his student's favorite type of weather. The students had the choice of hot, cold, and/or rain/snow. The results are displayed in the Venn Diagram. Write your answer as a reduced fraction. Find Total: 27

$\frac{15}{27} = \frac{5}{9}$ 6. Find P(Cold).

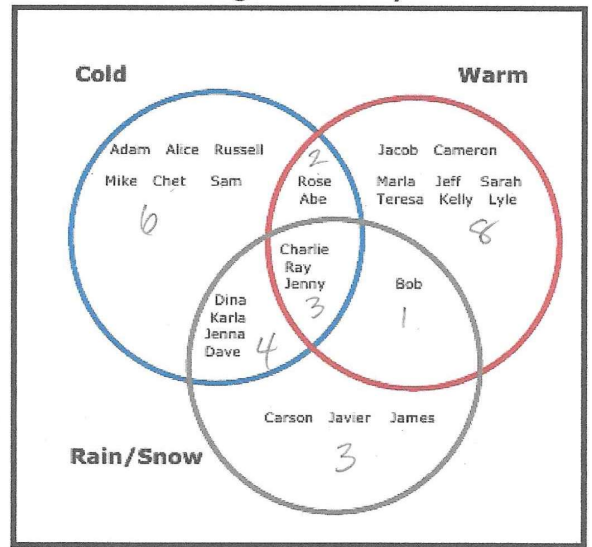
$\frac{13}{27}$ 7. Find P(Warm)'.

$\frac{5}{27}$ 8. Find P(Cold \cap Warm).

$\frac{4}{27}$ 9. Find P(Warm \cap Rain).

$\frac{3}{27} = \frac{1}{9}$ 10. Find P(Warm \cap Cold \cap Rain).

$\frac{24}{27} = \frac{8}{9}$ 11. Find P(Cold \cup Warm).

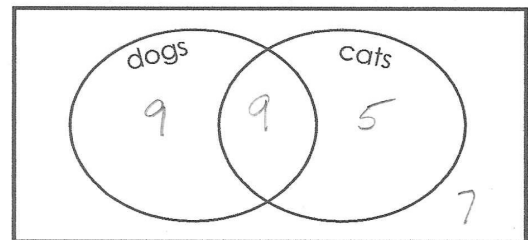


Fill in the venn diagram and answer the following questions. In your 30 student math class, 18 students have dogs, 14 students have cats, and 9 have both dogs and cats.

$\frac{18}{30} = \frac{3}{5}$ 12. Find P(dogs).

$\frac{23}{30}$ 13. Find P(dogs \cup cats).

$\frac{21}{30} = \frac{7}{10}$ 14. Find P(dogs \cap cats)'.



intersection (overlap only)

$\frac{18}{30} = \frac{3}{5}$

$\frac{23}{30}$

$\frac{7}{10}$