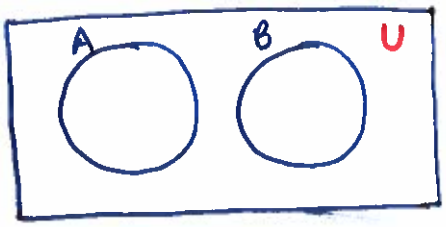
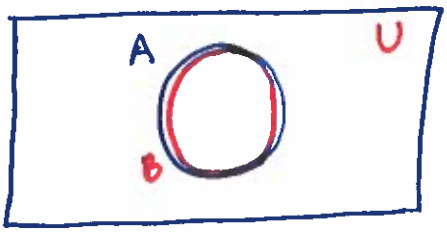
Venn Diagrams for Set Relationships

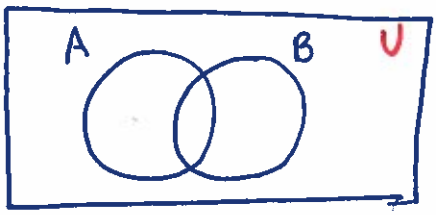
A two set Venn Diagram

① 

U = { STUDENTS YOU TEACH }
A = { GEOMETRY CLASSES }
B = { ALG II CLASSES }

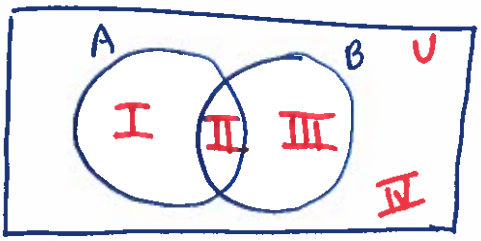
② 

U = { STUDENTS YOU TEACH }
A = { ALG II STUDENTS }
B = { HOMEROOM STUDENTS }

* ③ 

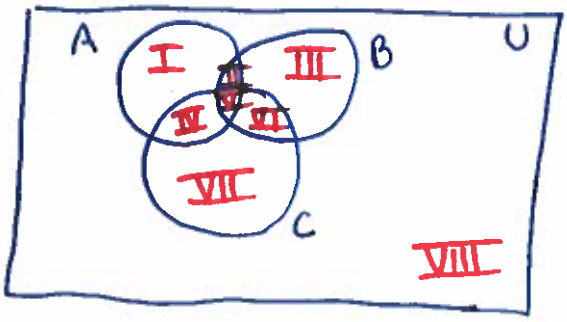
U = { STUDENTS YOU TEACH }
A = { ALG II STUDENTS }
B = { GEOMETRY STUDENTS }

FOR THE GENERAL CASE OF A TWO SET VENN DIAGRAM



A = { I, II }
B = { II, III }

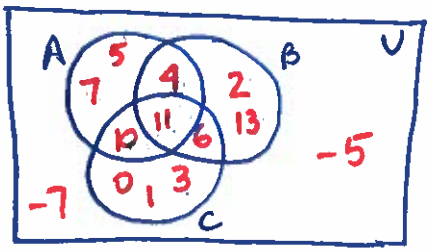
A three set Venn Diagram



WHICH REGION IS IN EACH STATEMENT?

1. $(A \cap B \cap C) =$ V
2. $(A \cup B \cup C)' =$ VIII
3. $(A \cup B)' =$ VII, VIII
4. $(A \cup B) - C =$ I, II, III

ANSWER EACH REGIONS CARDINALITY



$n(A) = 5$

$n(B) = 5$

$n(A \cap B \cap C) = 1$

$n(A \cup B)' = 5$

$n(A \cap B) = 2$

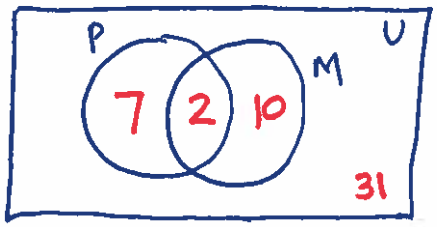
$n(A \cap C)' = 10$

Application Example (two set Venn Diagrams)

During an hour at Domino's Pizza, the following orders came in for delivery:

- ✓ 9 pepperoni pizza orders
- ✓ 12 mushroom pizza orders
- ✓ 2 both pepperoni and mushroom orders

50 TOTAL ORDERS



Answer the following questions about the orders:

--How many orders wanted just one topping? 17

--How many orders did not want mushrooms on their pizza? 38

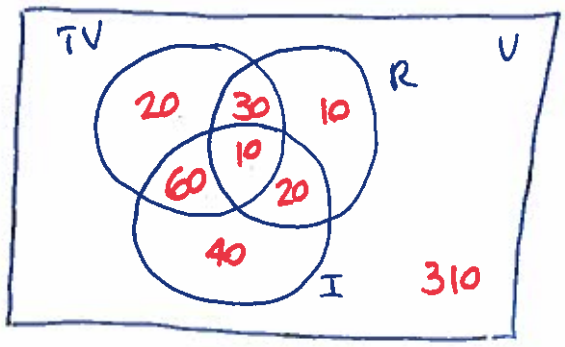
--How many orders did not want pepperoni or mushrooms on their pizza? 31

--How many did not want pepperoni on their pizza? 41

Application Example (three set Venn Diagram).

✓500 people were surveyed about how they followed the news. The results followed:

✓120 via TV
✓70 via radio
✓130 via online
✓40 both TV and radio
✓30 both radio and online
✓70 via TV and online
✓10 all three mediums



Answer the following questions:

--How many used just one medium? $20 + 10 + 40 = 70$

--How many did not use radio? $20 + 60 + 40 + 310 = 430$

--How many used radio or TV? $20 + 30 + 10 + 60 + 10 + 20 = 150$

--How many used another method to follow the news (i.e. local newspaper)? 310