

Living DeMorgan's Laws – Class Handout

You are on the set construction crew today! After constructing each set, record who is in the set and who is in its complement in the following table. For example, if your instructor asks you to form the set $A \cap B$, those who have Card AB will be in the set, and all others will be in the complement; these results are recorded in the first two lines of the table.

Students in Each Set

Set	Card A	Card B	Card AB	Blank Card
$A \cap B$	no	no	yes	no
$(A \cap B)^c$	yes	yes	no	yes
$A \cup B$				
$(A \cup B)^c$				
$A^c \cap B$				
$(A^c \cap B)^c$				
$A^c \cup B$				
$(A^c \cup B)^c$				
$A \cap B^c$				
$(A \cap B^c)^c$				
$A \cup B^c$				
$(A \cup B^c)^c$				
$A^c \cap B^c$				
$(A^c \cap B^c)^c$				
$A^c \cup B^c$				
$(A^c \cup B^c)^c$				

Two sets are equal if they have exactly the same elements. In this case, two sets are equal if and only if they are composed of students with the same types of cards. Compare the sets in the chart above and find all pairs of equal sets.

Finish the sentence: The complement of the intersection of two sets is equal to

Finish the sentence: The complement of the union of two sets is equal to