

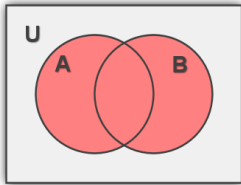
**Xavier School
SETS**



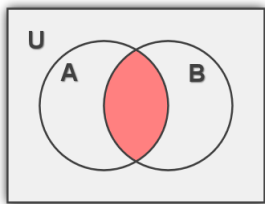
ANSWER KEY to EXERCISES on Venn Diagram and Set Operation

1. Construct a Venn Diagram and shade the appropriate regions:

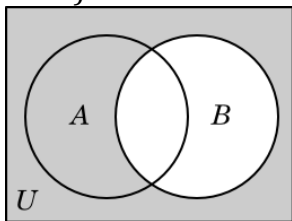
a.) $A \cup B$



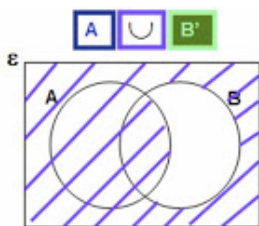
b.) $A \cap B$



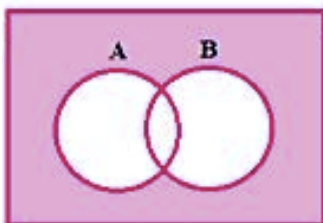
c.) B'



d.) $A \cup B'$



e.) $(A \cup B)'$



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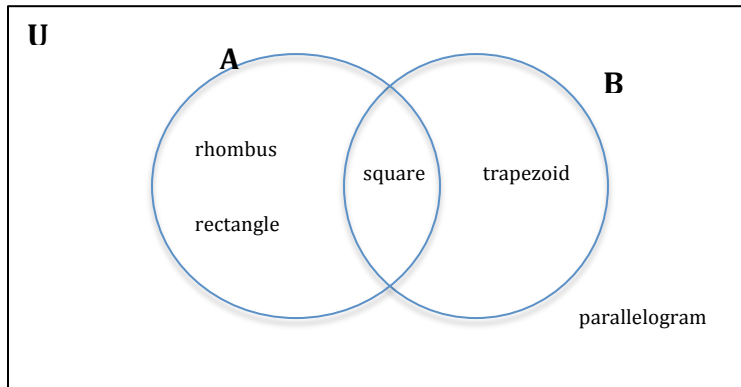
2. Given: $U = \{a, b, c, d, e, f, g, h\}$
 $A = \{a, b, d, e, h\}$
 $B = \{b, c, d, f\}$

Find the following:

- a.) $A \cup B = \{a, b, c, d, e, f, h\}$
b.) $A \cap B = \{b, d\}$
c.) $B' = \{a, e, g, h\}$
d.) $A \cup B' = \{a, b, d, e, g, h\}$
e.) $(A \cup B)' = \{g\}$
f.) $A' \cap B' = \{g\}$
g.) $(A \cup B) \cap B = \{b, c, d, f\}$
h.) $(A \cup B) \cup (A \cup B)' = \{a, b, c, d, e, f, g, h\}$
i.) $(B \cup A)' \cap (B \cup A) = \{ \}$
j.) $A' \cup (A \cap B) = \{b, c, d, f, g\}$

3. If U is the set of all Xavier High School students and A is the set of all Xavier High School students with a 90+ Math grade, define A' . **A' is the set of all Xavier HS students with a Math grade of below 90.**

4. Given the sets U , A and B , construct a Venn diagram and place the elements in the proper regions.
 $U = \{\text{rhombus, square, rectangle, parallelogram, trapezoid}\}$
 $A = \{\text{rhombus, square, rectangle}\}$
 $B = \{\text{square, trapezoid}\}$



5. Let U represent the set of all rock bands in the Philippines during the period from 1983 to 1993. Let set A be the set of all rock bands that have recorded less than three albums during that period of time. Define A' . **A' is the set of all rock bands that have recorded three or more albums.**

6. Consider sets P and Q . Under what conditions would each of the following be true?

- a) $P \cup Q = \emptyset$ **If they are disjoint.**
b) $P \cup \emptyset = \emptyset$ **If P is an empty set.**
c) $P \cap Q = P$ **If $P = Q$.**
d) $P \cup Q = P$ **If $P = Q$.**
e) $P \cup Q = P \cap Q$ **If $P = Q$.**