

Some problems
(Not a quiz!)

TRUE or FALSE

① For any sets A , B , and C ,
 $A \cap (B \cap C)^c = A \cap B^c \cap C^c$.

② If A , B , and C are sets
and $A \subseteq B$ then $A \cap (B \cup C)$
 $= A$.

③ If A , B , and C are sets and
 $A \subseteq C$ then $A \cup (B \cap C) = (A \cup B) \cap C$.

A Relation R on A can be:

✓ \rightarrow reflexive

✓ \rightarrow symmetric

~~anti-symmetric~~

✓ \rightarrow transitive

} Equivalence
relations



Equivalence Relations

An equivalence relation (on a set A) is a relation that is reflexive, symmetric, and transitive.

Examples. ① $=$, on any set.

② $a \equiv b \pmod{n}$ (on integers) \mathbb{Z}

③ P and Q have the same number of sides (on polygons)