

1. True or false. A set is any collection of objects.
2. True or false. A proper subset of a set is itself a subset of the set, but not vice versa.
3. True or false. The empty set is a subset of every set.
4. True or false. If  $A \cup B = \emptyset$ , then  $A = \emptyset$  and  $B = \emptyset$ .
5. True or false. If  $A \cap B = \emptyset$ , then  $A = \emptyset$  or  $B = \emptyset$  or both  $A$  and  $B$  are empty sets.
6. True or false.  $(A \cup A^c)^c = \emptyset$ .
7. True or false.  $[A \cap (B \cup C)]^c = (A \cap B)^c \cap (A \cap C)^c$
8. True or false.  $n(A) + n(B) = n(A \cup B) + n(A \cap B)$
9. True or false. If  $A \neq B$ , then  $n(B) = n(A) + n(A^c \cap B)$ .
10. True or false. The number of permutations of  $n$  distinct objects taken all together is  $n!$
11. True or false.  $P(n, r) = n! C(n, r)$ .