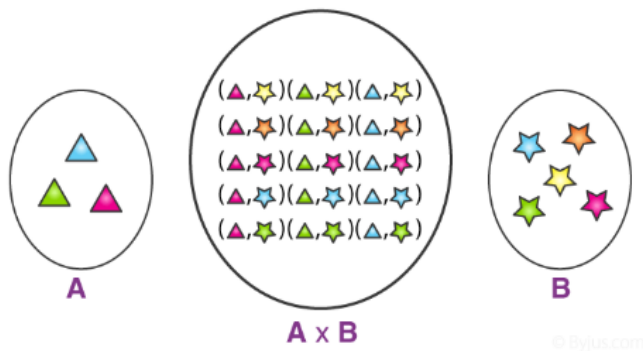


Tips and Tricks

Visual Tip: If you really don't understand cartesian product then this might help.



The Cartesian product of given sets A and B is given as a combination of distinct colours of triangles and stars. Thus, a total of 15 ($= 3 \times 5$) pairs are formed in $A \times B$ from the given sets.

Formula Tip-1: To quickly get number of elements in the final cartesian product.

If there are m elements in A and n elements in B, then there will be mn elements in $A \times B$. That means:

$$n(A) = m \text{ and } n(B) = n \longrightarrow n(A \times B) = mn$$

Formula Tip-2: Cartesian product with intersection or union of sets

Let A, B and C be three non-empty sets, then,

- $A \times (B \cap C) = (A \times B) \cap (A \times C)$
- $A \times (B \cup C) = (A \times B) \cup (A \times C)$
- $(A \cap B) \times C = (A \times C) \cap (B \times C)$
- $(A \cup B) \times C = (A \times C) \cup (B \times C)$

In JEE Exams and NCERT, questions have been asked that takes help of these formulas.

Bonus: As cartesian products use sets as their basic block. It is useful to know your basic results from Set chapter.