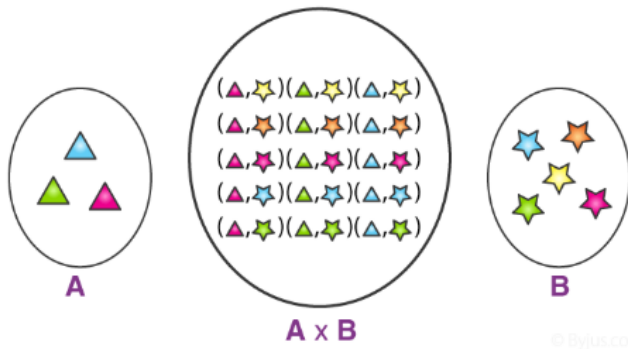Tips and Tricks

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 x 5) pairs are formed in A × 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 × B. That means:

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

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

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

- A × (B ∩ C) = (A × B) ∩ (A × C)
- A × (B ∪ C) = (A × B) ∪ (A × C)
- (A ∩ B) × C = (A × C) ∩ (B × C)
- (A ∪ B) × C = (A × C) ∪ (B × 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.