Chapter 02 – Computer Science (Class 10)

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1. Consider 3 boys and 3 girls want to team up as pair for the 14th August related student performance at the school. Find the total no. of ways these pairs could be formed using Counting Principle Problems.

Answer:

We can pair each boy with each girl in different ways.
Using the formula for permutations:
3 boys can be paired with 3 girls in **3! = 6** ways.

Explanation: Har ladka kisi bhi larki ke saath pair banaye ga. Jab 3 ladke hain aur 3 larkiyan, to pairing ka total tariqa 6 ho ga, jaise A-B, B-C, etc. (ye pairing ek sequence mein hoti hai is liye 3! use hota hai).

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2. Suppose you have selected black pant to attend school function and have three options of shirt to choose. Find the total no. of ways you can dress up using Counting Principle Problems.

Answer:

You already selected 1 pant and have 3 shirts.
So, total outfits = 1 pant × 3 shirts = **3 ways**.

Explanation: Aik pant fix hai aur har shirt ke saath aik naya combination banta hai, is liye total 3 combinations banenge.

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3. You are sitting at a study table doing homework. The penholder on the table contains 2 blue pens, 1 black pen, and 2 lead pencils. How many options do you have for writing?

Answer:

Total writing tools = 2 blue pens + 1 black pen + 2 lead pencils = **5 options**.

Explanation: Aap ke paas likhne ke liye total 5 cheezein hain, is liye 5 mukhtalif options hain homework likhne ke liye.

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4. For a race on sports day activities, a group of 20 students are given a race lane at random. There are six students selected for the first race. How many different orders of the six lanes for students may be chosen?

Answer:

This is a permutation problem: selecting and arranging 6 out of 20.
So, total ways = **P(20,6) = 20 × 19 × 18 × 17 × 16 × 15 = 27,907,200**.

Explanation: Jab order important ho (jaise race ke lane numbers), to permutation use hota hai. Har student ka position alag ho sakta hai, is liye hum multiply karte hain descending numbers se.

The End

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