

NPTEL

NPTEL ONLINE COURSE

Discrete Mathematics

Let Us Count

Permutations - Part 1

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We are now in a position to learn how to count. We will be learning permutations now. And we will be solving a variety of problems. The knowledge of factorial, rule of sum and rule of product will come handy from this point onwards.

Look at these five friends wearing different colored shirts. In how many ways can three people come forward and take a picture?

You saw what just happened, right? So there are five friends; three of them come forward, two of them run away from the scene and these three people take all possible pictures with their locations shifted. And which is indeed $3 \times 2 \times 1$; 6 ways. For every such 3 pics from five people you take 6 pictures out of that. So in total in how many ways can these five friends take their pictures where every picture contains three of them in all possible coordinates?

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