Namita

SB TechMath

GATE 2022
75 Days Crash Course

GROUP THEORY

LECTURE -8

1 Tutor: Shruti Priya

Let S_9 be the group of all permutations of the set $\{1,2,3,4,5,6,7,8,9\}$. Then the total number of elements of S_9 that commute with $\tau = (1\ 2\ 3)(4\ 5\ 6\ 7)$ in S_9 equals _____.

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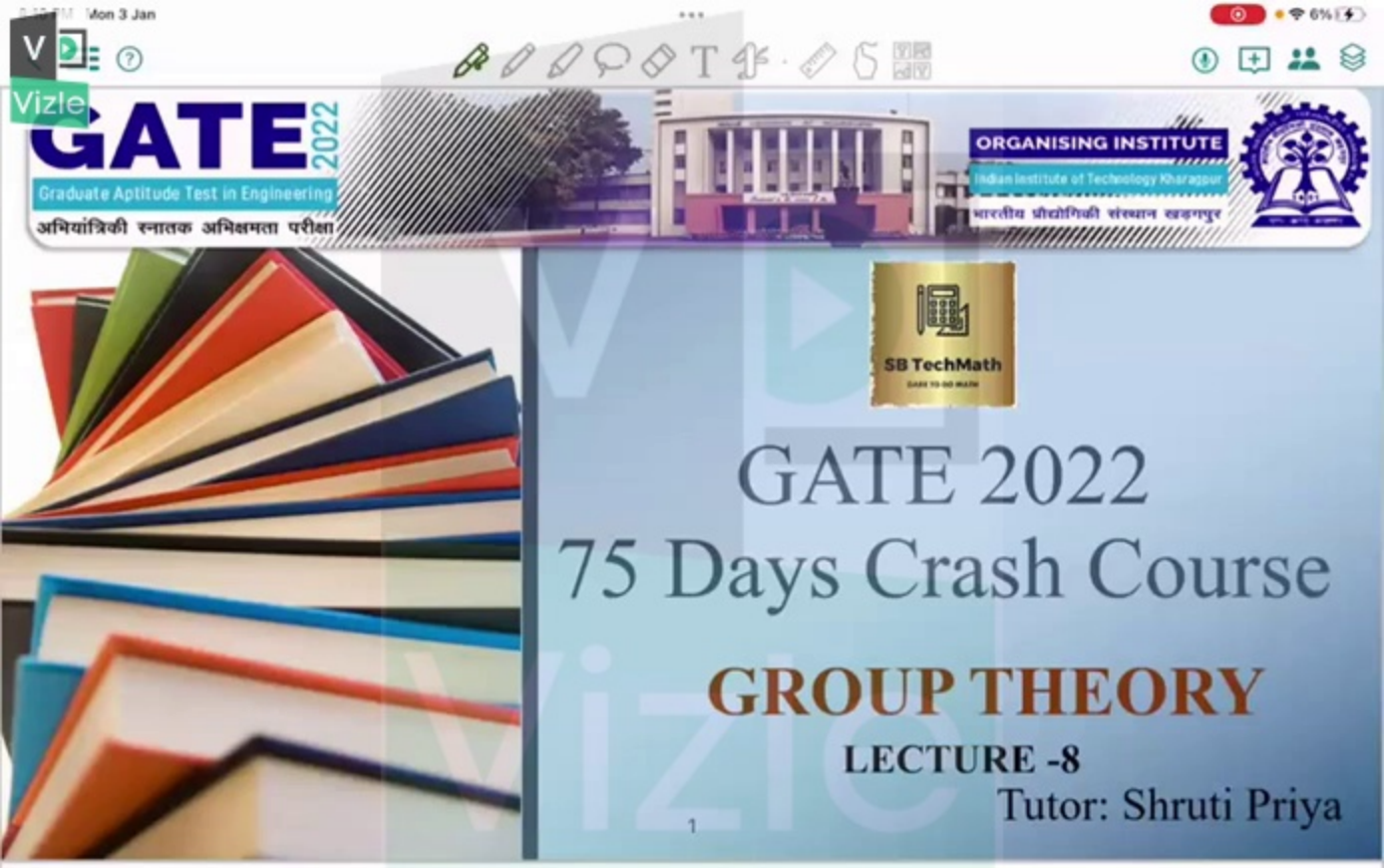
→ Results on Lagrange's Theorem.

1. Let $|G| = p.q$, where p and q are distinct primes. Then every proper subgroup of G is cyclic.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Graduate Aptitude Test in Engineering
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3. If $|H| = m$, $|K| = n$, $\gcd(m, n) = 1$, where H and K are sub-groups of G, then $H \cap K = \{e\}$.

4. Result on index of a subgroup: $(\mathbb{Q}, +)$ has no proper subgroup of finite index.

NORMAL SUBGROUPS AND FACTOR GROUPS.

$|G| =$