

$\therefore \text{Pr}(\mu) = \frac{1}{\sigma^2}$

[illegible]

י' ספר ומהלך ה' ג' ט' ו' י' -

$$|G| = |Z(G)| + \sum_{i=1}^l \frac{|G|}{|G_{K_i}|}$$

$x_1, \dots, x_k \in G$
 $1 \leq k \leq n$
 $\#$

$\therefore \text{IND}_1 = 6 \text{ sec}$ $5-3 = 15$ $\therefore \text{IND}_2 = 6 \text{ sec}$ $\therefore \text{IND}_3 = 6 \text{ sec}$

$S^1 \subset \mathbb{C}^*$, $\pi_1(S^1) = \mathbb{Z}$

$|0, 1\rangle \in G$, $x \in G$

$\delta, \delta' : \mathbb{R} \rightarrow G$, $\delta(0) = 1$, $\delta'(0) = x$

$Z(G) \neq G$

$Z(G)$ is
 $\mathbb{Z}/n\mathbb{Z}$

$$|b(x)| \leq |G| - |Z(x)| \leq |G| - 1 \quad x \in Z(G)$$

$p \in \mathbb{C}$ $|0(x)| = 1, 3, 5$ $|1(x)| = 1, 6$ $|2(x)| = 7$
 $|0(x)| = 3, 5$ $|1(x)| = 5, 6$ $|2(x)| = 6, 7$
 $|0(x)| = 5, 6$ $|1(x)| = 6, 7$ $|2(x)| = 7, 8$

$$S'IC \mid Z(G) = 3,5 \quad \text{PAC} \quad Y \mid Z(G) = 1,7,5$$

$\text{Sic} \rightarrow \text{Sic} \rightarrow \text{Sic}$

$5 \mid 15$ $3 \mid 15$ $5 \mid 15$ $15 = 3 \cdot 5$
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מספרים ראשוניים

$$15 = 3 + 3 + 3 + 3 + 3$$

$$0 \leq k \leq 2$$

על ידי

$$3 + 12$$

כאשר $k \neq 0$

$$3 + 6$$

כאשר $k \neq 2$

$$15 = 3 + 3 + 3 + 3 + 3$$

$k=1$ / 18

$$|O(x)| = 5 \quad \forall x \in G \quad \wedge \quad 15 = 3 \cdot 5$$

המספרים 3 ו-5

$$O(x) = 3 \quad \forall x \in G: O(x) = 3$$

$$\forall x \in G_x$$

$$\forall x \in O(x)$$

אם

$$O(x) = 3$$

$$x \neq 1$$

$$x \cdot x = x \cdot x^{-1} = x$$

$$|G_x| = \frac{|G|}{|O(x)|} = \frac{15}{3} = 5$$

מספרים ראשוניים $x \neq 1$

$$|O(x)| = 5$$

$$\forall x \in O(x)$$

אם

$$\forall x \in O(x)$$

$$\forall x \in G \quad \exists i, 1 \leq i \leq p, H_i \in G$$

$$|H_i| = 3$$

$$15 = 3 \cdot 5$$

18

$H_i = H_i \cap H_j$
 $\{e\}$

$\{e\}$

S_n

$\sigma = \alpha_1 \dots \alpha_n$

$\sigma \in S_n$

$\sigma(\alpha_1) \geq \sigma(\alpha_2) \geq \dots \geq \sigma(\alpha_n)$

σ

$\sigma = (\sigma(\alpha_1), \sigma(\alpha_2), \dots, \sigma(\alpha_n))$

$\sigma = (1, 2) \dots (n-1, n) \in S_n$

$(2, 2)$

$\sigma' = (1, 2, 3) \dots (n-1, n) \in S_n$

$(3, 2, 1) : \sigma'$

$(1, 1, 1)$

$(1)(2)(3) \in S_3$

S_n

$\sigma \in S_n$

$\sigma \sigma^{-1} = (\sigma \alpha_1 \sigma^{-1}) (\sigma \alpha_2 \sigma^{-1}) \dots (\sigma \alpha_n \sigma^{-1})$

$(\sigma \alpha_i \sigma^{-1})$

α_i

σ

$$\sigma(a_i) = \sigma(a_{i1}) \dots \sigma(a_{ih_i})$$

$$\sigma \circ \sigma^{-1} = \text{id}$$

$$\sigma(h_i) = h_i, \quad T = \beta_1 \dots \beta_{h_i}$$

$$\sigma(a_{ij}) = b_{ij}$$

$$1 \leq j \leq h_i, \quad 1 \leq i \leq n$$

$$\sigma \circ \sigma^{-1} = \text{id}$$

S_4 is a group of order 24. S_4 is a group of order 24.

$$(1,1,1,1), (2,1,1), (2,1), (3,1), (4)$$

$$\text{number of } \binom{4}{2} = 6$$

$$H \leq G$$

$$g \in G, \quad gH \neq H$$

$$H \trianglelefteq G, \quad X = \{k : k < G\}$$

$$g \in G \text{ s.t. } gHg^{-1} = H \Leftrightarrow g \in N_G(H)$$

$$|\{g(Hg^{-1} : g \in G)\}| = |O(H)| = (G : G_H) = (G : N_G(H))$$

$$O(H) = \{g_i H g_i^{-1} : 1 \leq i \leq l\}$$

א"כ 1.5.8

$$|O(H)| \leq \sum_{i=1}^l |g_i H g_i^{-1}| = l|H| = (G : N_G(H))|H| \leq$$

$$(G : H)|H| = |G|$$

$$| \bigcup_{i=1}^l \{g_i H g_i^{-1}\} |$$

$$e \in \bigcap_{i=1}^l g_i H g_i^{-1}$$

$$1 = l \quad \text{א"כ } l > 1$$

$$H \trianglelefteq G \quad \text{א"כ } l = 1$$