Prime factorization →

$\boxed{12 = 2^{2} \times 3^{1}}$

$\boxed{60 = 2^{2} \times 3^{1} \times 5^{1}}$

$3 \times 2 \times 2 = 12$

$\boxed{16 = 2^{\boxed{4}}} \rightarrow 4 + 1 = 5$

0 ~ 4

1, 2, 4, 8, 16

$2^0 \quad 2^1 \quad 2^2 \quad 2^3 \quad 2^4$

$nod(2^k) = k+1$

# how many divisors?

$nod(12) = (2+1)(1+1) = 3 \times 2 = 6$

$nod(2^k \cdot 3^J)$

$= (k+1)(J+1)$

$N = P_1^{\alpha_1} \times P_2^{\alpha_2} \times P_3^{\alpha_3} \times \dots \times P_k^{\alpha_k}$

$nod(N) = \underbrace{(\alpha_1+1)(\alpha_2+1)(\alpha_3+1)\dots(\alpha_k+1)}$

$= \prod_{i=1}^{k} (\alpha_i + 1)$

$\boxed{\sum_{i=1}^{n} i}$

$\boxed{(\alpha_1+1)}\boxed{(\alpha_2+1)}\boxed{(\alpha_3+1)} \rightarrow \boxed{\alpha_1} \quad \boxed{\alpha_2} \quad \boxed{\alpha_3}$

odd odd odd even even even

↓

$N = P_1^{\boxed{2 \times x_1}} \times P_2^{\boxed{2 \times x_2}} \times P_3^{\boxed{2 \times x_3}}$

$x^{3y} = (x^y)^3$

$\Rightarrow N = (P_1^{x_1})^2 (P_2^{x_2})^2 (P_3^{x_3})^2$

$\Rightarrow N = (P_1^{x_1} \cdot P_2^{x_2} \cdot P_3^{x_3})^2$

$144 = (12)^2$

$nod(144) = 5 \times 3 = 15$

$144 = (12)^2$

$= (2^{\boxed{2}} \times 3^{\boxed{1}})^2$

$= 2^{\boxed{4}} \times 3^{\boxed{2}}$

$nod(144) = 5 \times 3 = 15$

$(\alpha_1 + 1) = 3$

$\therefore \alpha_1 = 2$

1) sqrt

2) $\sqrt{N_T}$ = প্রাইম

$\boxed{N_T} = \boxed{P^{2}}$

$nod(N_T) = 2 + 1 = 3$

$\sqrt{N_T} = P$

$2^2, 3^2, 5^2, 7^2, 11^2$

$10^5 \times 10^3 = 10^8$