

ریاضی پایه نهم
مدرس: علی کلانتری

عنوان اصلی درس:
تمرین های توان و جذر



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دوره اول

Handwritten mathematical notes and diagrams illustrating concepts related to power and roots. The notes include:

- Integration of $(R^2 - z^2)^2 dz$ and $\int_0^R R^3 dz - 2 \int_0^R R^2 z^2 dz$.
- Equation: $J = \pi \rho \int_0^R (R^2 - z^2)^2 dz = A = \oint \vec{F} d\vec{l} = 0$.
- Equation: $\int \frac{dx}{\cos x} = \ln \left| \frac{1 + \tan^2 x}{1 + (n+1)^2 x^2} \right|$.
- Equation: $e^2 = mF$.
- Equation: $\mu = \rho V = \frac{4}{5} \rho \pi R^3$.
- Equation: $\pi \rho \left[R^5 - \frac{2}{3} R^5 + \frac{1}{5} R^5 \right] + \frac{1}{15} = \rho R^5 \frac{1}{2} m A^2 \frac{\pi^2}{16} = 250 J M = \rho V = \frac{4}{5} \rho \pi R^3$.
- Equation: $\frac{x-3}{\sqrt{x^2-2x+3}} dx = \frac{1}{r^3} \int r' \cos \theta \rho dv$.
- Equation: $\int \frac{x}{(x^2+a)^2} = \frac{2(n+1)x^2}{(x^2+a)^{n+1}} - \frac{x}{(x^2+a)^n}$.
- Equation: $\int (R^2 - z^2) dz = \frac{2}{5} \rho \pi R^5$.
- Equation: $S = ? 2 \int t i + j \frac{2}{3} t$.
- Equation: $E = ?$.
- Equation: $\int \frac{dx}{ch^2 x}$.
- Equation: $\frac{\varphi}{\omega}$.
- Equation: $t = 10 s$.
- Equation: $t^3 y E = \frac{1}{2} m A^2 \omega^2 \cos^2(\omega t + \varphi)$.
- Equation: $F = A^2 \omega^2 \sin^2(\omega t) 2 \int t i + \frac{2}{3} t + \frac{5}{3} \int t^2 = \frac{m}{m_0}$.
- Equation: $\sqrt{1 - \frac{c^2}{c^2} \sqrt{1 - \frac{v_2^2}{c^2}} t^2 + \frac{2t^2}{6} + \frac{5t^2}{9} x = A \cos(\omega t)$.
- Equation: $\int 2t i + (-\frac{2}{3} t^2) = -\frac{2}{3} t^2 i - \frac{2}{9} t^3$.
- Equation: $1 + c Q_{1-2} = \frac{3}{2} v R (T_2 - T_1) = \frac{3}{2} v R \int 2t$.
- Equation: $-3 \sqrt{4+x^2} + C \frac{1}{\cos^2 \varphi - \sin^2 \varphi} (2T_1 - T_2) = \frac{3}{2} v$.
- Equation: $= v R T_1 \ln \frac{v_1}{v_2} = v R T_1 \ln \frac{1}{2}$.
- Equation: $t^2 + \frac{t^2}{3} + \frac{5t^2}{9}$.
- Equation: $\frac{5t^3}{9}$.
- Equation: $v = \frac{1}{3} a R h \frac{1}{3} \pi r^2$.
- Equation: $v_0 = 2i + k$.
- Equation: $v = \frac{1}{3} a R^3 h 2 \int t + \frac{2}{3} \int t + \frac{5}{3} \int t^2 = 2$.
- Equation: $\sqrt{1 - \frac{c^2}{c^2}} \varphi = \rho ds \int \frac{dx \cos \theta}{r^2} F = \frac{1}{\cos}$.
- Equation: $\mu = \rho V = \frac{4}{5} \rho \pi R^3$.
- Equation: $F_x = \frac{1}{2} m A^2 \omega^2 \cos^2(\omega t + \varphi)$.
- Equation: $Q_{1-2} = Q_{1-2} = v R T_1 \ln \frac{v_1}{v_2}$.
- Equation: $\varphi = \frac{1}{r} \int \rho dv + \frac{1}{r^2} \int r' \cos \theta \rho dv$.
- Equation: $\varphi = \rho ds \int \frac{dx \cos \theta}{r^2} E_x = \frac{1}{2} m A^2 \omega^2$.
- Equation: $\rho = \frac{3M}{4\rho \pi R}$.
- Equation: $1 = \frac{e v}{2 \pi R} \frac{8}{15} \pi = \frac{3M}{4\rho \pi R}$.
- Equation: $\varphi = \frac{M \cos \varphi}{r^3}$.
- Equation: $u = \frac{1}{2} m A^2 \omega^2 \sin^2(\omega t + \varphi_0) \frac{1}{2} m A^2$.

Diagrams include a sphere with a vertical axis and a right-angled triangle with sides labeled p , c , and r .



عنوان درس: اعداد گویا

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تمرین، حاصل عبارت‌ها را بنویس، هر عبارت عدد توان را بنویس:

$$\text{الف) } 2^7 + 2^7 + 2^7 + 2^7 =$$

$$\text{ب) } 3^5 \times 15^2 \times 5^5 =$$

$$\text{پ) } 4^5 \times 1^3 \times 14^2 =$$

$$\text{د) } 5^4 \times 125^3 =$$



$$\text{ب) } \frac{۴۸^۹}{۸^۷ \times ۶^۷} =$$

$$\text{ج) } ۵/۵۰۰۱۶ =$$

$$\text{د) } \frac{۳^۲ \times ۸۱^۳}{۷^{۱۲}} =$$

$$\text{ه) } (۲۷^۳)^۵ \times (۴^۱۵)^۳ =$$