

dH = 1dt XORID Buet -Jai × QAD = In do (zan + naz) Idi vapio = In do at X / Zaz- ran 11 4TT (0 + 20) 3/2 I (Zndf ant nd daz) Salvest law; 411 (12+20) 3/2 4TR 2 (ZART + 2/22) 2 (2~ 1 + 12 az) 4T (ny 2) 312 3, 22 to 6 4 de 1 mt xo I $H = \frac{\int a^{p} a^{2} \pi}{4\pi (a^{p} + z^{2})^{2} a^{2}} (4)_{0}^{2\pi}$ By Radial Symmetry; 1 200 H 1 272002 411 (24 2°) 3/2 pant P is at contre, Z=Oi c/c(2+20) 2 ADADANA CO LANG 223 Be AT = 0 OZ OZ Langan Sa Az 31 P=0

the stated peuth The ampone's cincuital law stutes that mipare's Cincultal magnetic field whensity anound closed 2ª connenot path is exactly equal to a enclosed by shall law e X Ø H·di = -Paoof di = n do an TI T = JP.H O 2777 5 1 SILV 0 = 0 11 es 1 27 fer 1 ad x 21 rd pap dø \$ (for infinite) en

18 concluetor . I due to as colonele lections of Amprovets ciscultal laws RONDA yoash $H\phi\gamma\left[4\right]_{0}^{2\pi}=\mathcal{T}$ H4 9 [211] I H¢ $T = \phi p e \phi H \phi$ by anyone's cincutal law, T 11 H.dL HA af. odd af 1 11 oddad Ho and 2110 9 H. dr = 1 20

Just In the algeon O < M < 0.5 m in 200- Given, roch J = 0 else whene. Une ampenis cinicital law to find H ? I = \$ 4.5e. ndad\$ ds = ndndfaz density is T= 4.5 e²⁰ az A/w upinical coordinates, the consump- $2 = \phi \overline{T} d\overline{s}$ 1 4.5mil For rearda 4.5 0.5 4.5 En a dado 27 0.5 J= 4.50 07 A/00. and no de $f = \frac{1}{2} p \cdot v \cdot p \cdot q$ 1 = 211 × 4.5 (7e-211 277 X 4.5 -0.25 E -= 271×4.5 buy at . role at = I 21 × 4.5 2TX 4.5 (7. e.) 91 24×40 1.8689 - 2 - 0.092 -OH. di 101 2. E2M -2 0H 4 G-20 10.5 $-\frac{1}{200}\left(\frac{e^{2n}}{2}\right)^{0}$ 1 - 0.25 et]+ + 1 1. 1.24 0.5 - 0.0919 + 1/4J

 $|H_{\phi}\alpha d\phi = T$ 2) The vector respects potential denstad on F. HON 2TT = I magnetic potential they must satisfy the They are Euro Eyes of portentials is magnetic freedo. 1) Scalin reagnetic potential durated as to Vo. He = 1 2TIN H = 0.297 Que Blu. Scalary and vector magnetic potentials 1.8689 - H4 STA To define scalm met weeks X HA bollowing identities. Scalin magnetic portantal (No) (now (3) \$ (4) -> ()=> ()×(-H)=0. V = Scalar polinhil. A = vector . (AN) $\nabla \cdot (\nabla \times \hat{A}) = 0$ H= - OVO - -0 J=0 OXH-J-VX VVD =0 VXH = 0-VX VV = 0, Date of the second (W) (2)

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On comprise (1) nod (2) of a vector & always zens. eq", that is the dwondence of was for the scalm regardie potaties As not st should satisfy the following Vector magnetic potential in denoted a land the due thearend , Victor raquete potential. Ox B = T OXB = JHO B= DXA DXH - J 0. B=0 . $\nabla \cdot (\nabla X \overline{A}) = 0 - (1)$ 3 4) aus to apodence to ordinate Fr= (c) is (b) \Rightarrow wing were able (2,3) = 3 (b) \Rightarrow (2,3) = 2 (c) (2,3) = 3 (c) (2,3) =10 2 4 2 0 1 2 1 2 0 materes are builded centaro nequos ob bace space. Find H JB T and wing I find the dotal crimin I to a vector magnetic, potrobial, to a 6) Macy 20 20G = A Ho D(0.5) - DB

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eq2, that is the duringence of unit of a vector & always zero. As not se should satisfy the following Veeto magnetic petronal in denoted as On comprising (1) nod (2) from the scalin magnetic petroteil law the dur thenen , Victor magnetic potnital. $O \times \overline{B} = \overline{J}$ OXB = JHO B= DXA DXH = T $\nabla \cdot (\nabla X \overline{A}) = 0 - (1)$ 0. B=0 -- (2) Chu- To alundance la co-ondicater &= centaro requos ob bore space. Fid H JB mousing the employ of MILL privation I not using I find the total conant I (G) in (5) => es a vector magnetic, potrobal, lo a using vector citrobity: the RHS of (5) cas be expressed as; (3) in (4) => JX (BXA) = JNO $f = 1 \nabla x \nabla x \overline{A}$ $\nabla x (\nabla x \overline{B}) = \nabla (\nabla \cdot \overline{B}) - \nabla \overline{B}$ A = BONTAZ Wolm Ho D(D.B) - D 1 ALT & ALL (5) Scanned by CamScanner

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1 - AXD GXD $D = H \times O$ B= DXB H= 3/Ho nd x = 01= 67. ds B= QXA 500 az 200 3 200 FR 3 An=0 of Ad 200 nat 00 10. 500 P P\$=0 92 20. 0 Bz az Sec

(04/1000) 20 + 0) W B = - 10007 ad wolin? . 11 11 TXH = J 0x= 1/n / m (2 502 - 0) - NOT (2 502) AZ (- LOCTANO = HXD 11 = 100 x a4 ON/SI 2-0 - drad (50x200 \$2 U 001- = + 92 0 Mo Ne · voi (0-0) + Er (0-0) 3 0 -1000 nat No 20 Cu/et 92: 02 0

2 = 67. ds 11 11 11 11 4=200 × 217 d M -200 -200 -200 No -200 100 az · ordnadaz n dadd rdødn D/2 2 XUD:-De-kannine B 101 a pot P & (n, 4, z) the components ob vector magnetic potential. A me quino as ; B = VXA = -500×10 A = -400 T bx = 274 34+52. Az = 4x+34+22 , 47×157 By = 5m + 6y + 3x-200 TT 200 11 40 140 at pot p a ういう ういとこう por

6 O when It the weeken magnetic potential is Our The wagsent feld wheready is give c) use I to find the total channel paring a) find DXH Abrends the snofall Z=4, 1<n<2. b) Find J rector formo On for they anil 3<4<5 in the az is a region of space on , Ibilario the magnetic fluor density to H = xtoy ay + 24 x az Am. C 2010 22 taht al Der v by Chine: Kel II = (By-z) and + anz on white a) show that $\nabla \cdot \vec{P} = 0$ Find F, B, H and T b) at p(2,-1,3). on a contain region of free space 1 AND www.ktunotes.canned by CamScanner Downloaded From