

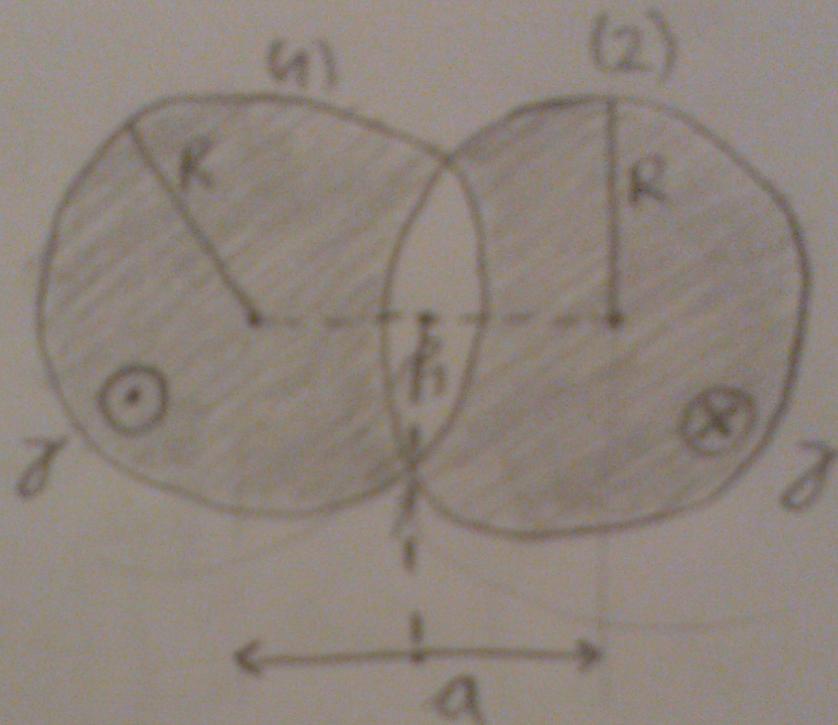
$$\frac{1}{2} \quad 2 \quad \frac{1}{2} \quad 2$$

3.60.

$$J = 0.15 \text{ A/mm}^2 =$$

$$R = 1 \text{ mm}$$

$$a = 1.25 \text{ mm}$$



$$\oint_C \vec{H} \cdot d\vec{l} = \iint_S J \vec{n} \cdot d\vec{s}$$

$$\begin{aligned}\vec{dl} &= r d\theta \hat{\omega} \\ dS &= r dr d\theta\end{aligned}$$

$\Rightarrow r < R$:

$$H \cdot 2\pi r = J \int_0^{2\pi} d\theta \int_0^r r dr$$

$$H \cdot 2\pi R = J \cdot 2\pi \cdot \frac{r^2}{2}$$

$$H = \frac{J \cdot r}{2}$$

za r > R:

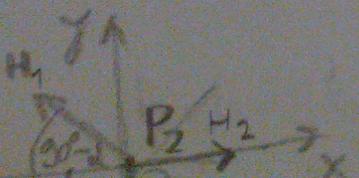
$$H \cdot 2\pi R = J \cdot 2\pi \int_0^R r dr$$

$$H_r = J \cdot \frac{R^2}{2}$$

$$H = \frac{J \cdot R^2}{2r}$$

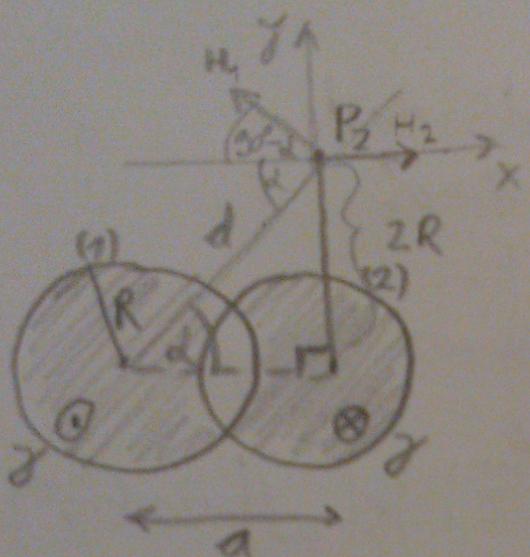
$$H_{tot} = H_1 + H_2 = \frac{J \cdot \frac{\pi}{2}}{2} + \frac{J \cdot \frac{\pi}{2}}{2} = 0,3125 A/mm = 312,5 A/m$$

- za oba voda rom levistir izvor za unutarnja jakost je je tokov položaj točke P_1 (oba su u međusobnoj)



3.61.

uničvornja jakost je je tokov
točki P_1 (sta je u mjestu \vec{a})



$$\operatorname{tg} \alpha = \frac{2R}{a}$$

$$\alpha = \operatorname{arctg} \left(\frac{2R}{a} \right) = 57,9946^\circ$$

$$d = \sqrt{a^2 + (2R)^2} = 2,358495 \text{ mm}$$

$$\vec{H}_2 = \frac{2 \cdot R^2}{2 \cdot 2R} \vec{\sigma}_x = 0,125 \vec{\sigma}_x \text{ A/mm}$$

$$\vec{H}_1 = \frac{2 \cdot R^2}{2 \cdot d} \vec{\sigma}_z = 0,1053 \left(\cos(30^\circ - \alpha) \vec{\sigma}_x + \sin(30^\circ - \alpha) \vec{\sigma}_y \right) = \\ = -0,0898 \vec{\sigma}_x + 0,056127 \vec{\sigma}_y$$

$$\vec{H}_{\text{ukl}} = \vec{H}_1 + \vec{H}_2 = 0,0352 \vec{\sigma}_x + 0,056127 \vec{\sigma}_y$$

$$|H_{\text{ukl}}| = 0,06625 \text{ A/mm} = 66,25 \text{ A/m}$$