along any portion of arc along any portion of arc All pieces along arc (Bfield)
point into the page. The de point of this point? dBp=0 (dexr=10)  $\overline{AB} = \mu_0 i \frac{d\vec{l} \times \hat{r}}{r^2}$ r is distance from current element to point P r points from current element to point p. only piece that contributes to Bp is the arc. B<sub>p</sub> = \ \frac{\mu\_0}{4\text{TT}} \frac{idl\x\hat{r}}{r^2} \quad \text{for every } idl, r=R, dl\x\hat{r}=dl\x\text{\infty} B<sub>P</sub> =  $\otimes$  [  $\frac{\mu_{0}i}{4\pi R^{2}}$  ]  $\frac{\pi}{dl}$  ] could replace dl = RdOBp = Moi TRA TRA - K Generalize: for any arclength OR

B= Moi OR - Moi O

HTTR