	classmate Date
۵	Find the electric field a distance z above the center of a square loop carrying uniform line charge z.
	No.
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	2 Fride
	ZIE
	Exidenia
	x = a/2 ->
	Ź
	Find Firstly we need to find the Evide (Electric field at Pdue to an
	Firstly we need to find the Evide (Electric field at Pdue to one ride of the raprave loop.
	$dE = 2E \cos \theta$
	$dE = 2 / (\lambda dx) \cos \theta^2$
	4x60 (n2+x2)
	n
	/ dx
	$-\frac{\partial x}{\partial x}$
	coso = r and x runs from o to a/2
	$\sqrt{x^2+x^2}$
	$\overrightarrow{F} = \frac{1}{4 \times \epsilon_0} \begin{cases} \frac{4}{2} & 2\lambda & dx & 2 \\ \hline (\pi^2 + x^2)^{3/2} & \end{cases}$
	4x Eo) (x2 + x2)3/2
	= 228 x 2/2 2
	4x 80 1 12 12 1
	$= 1 2\lambda \frac{\alpha}{2}$ $= 1 \lambda \alpha$ \hat{z}
	4 K EO 7 52 + a/4 4 K EO 122+a/4 122+a/4 +a/4
	So wee have Este Ebetric field at P due to one ride of the repressoop.
11	V

	That are 4 rides in a range. So well will mulliply it
-	That are 4 sides in a represe. So we see will mulliply it
_	
	None Erich has two components, Vertical (Exide 650) and horizontal (Exide xino)
	get canded cancelled.
	get canded cancelled.
_	
	4 Vertical components are equal and in rane direction. So they
_	get added up. caso = Z
	4 vertical components are equal and in rane direction. 50 they get added up. Caso = Z \[\tilde{Z}^2 + a^2/4 \]
_	So, Ep = 4 Exide cas O
	7 4 4 1 2 2 2 2
	= 4 x 1 2a x Z 2 4x E. \(\sum_{2^2 + a^2/4} \sum_{2^2 + a^2/4} \)
	12 17 12 12 17 14
_	= 4m 1 42aZ 2 4x E. (z2+a2/4) [22+a2/2
	4x E. (22+22/4) [22+22/2
_	
1)	When Z >> a
	Ep = 1 42ab This. The loop lubary like
	4KEO Z afaint charge in this condition
2)	Who a 77 Z
	Whi were
	Ep = 0
	4 7660 Because there is no Vertical

component.