E at P from thin line of length L (uniform charge density λ) is

$$\vec{E} = \frac{1}{4\pi\epsilon_0}\int \frac{1}{\mathscr{r}^2}\hat{\mathscr{r}}\,dq \qquad \vec{E} = \frac{1}{4\pi\epsilon_0}\int \frac{1}{\mathscr{r}^2}\hat{\mathscr{r}}\,\lambda\, dl'$$

$\mathscr{r}$ is:

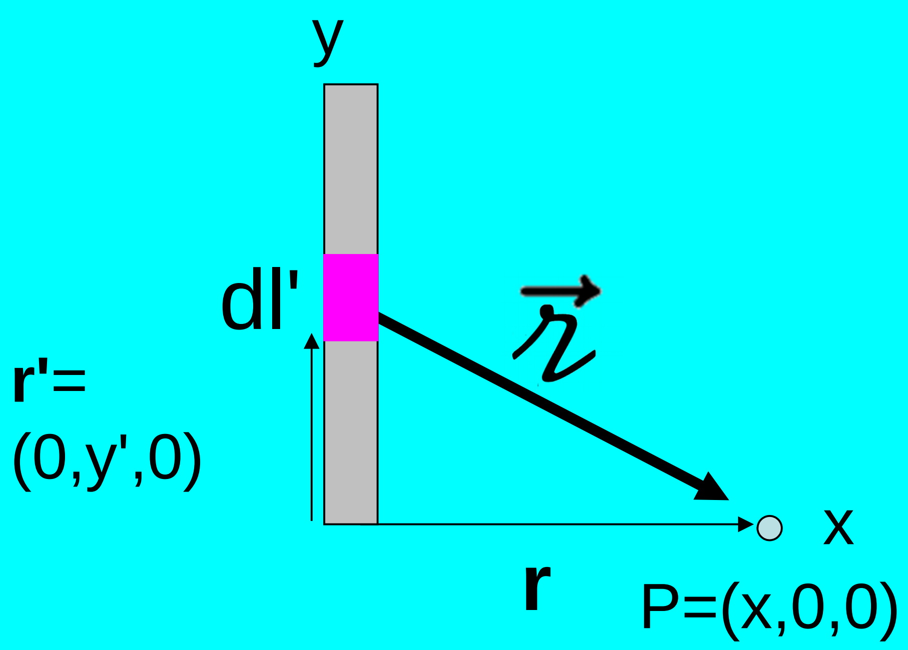
A) $\mathbf{x}$

B) $\mathbf{y'}$

C) $\sqrt{\mathbf{x}^2+\mathbf{y'}^2}$

D) $\sqrt{\mathbf{x}^2+\mathbf{dl'}^2}$

E) something else



E at P from thin line of length L (uniform charge density λ) is

$$\vec{E} = \frac{1}{4\pi\epsilon_0} \int \frac{1}{\mathscr{r}^2} \hat{\mathscr{r}} \lambda \, dl'$$

The variable of integration and its Limits are:

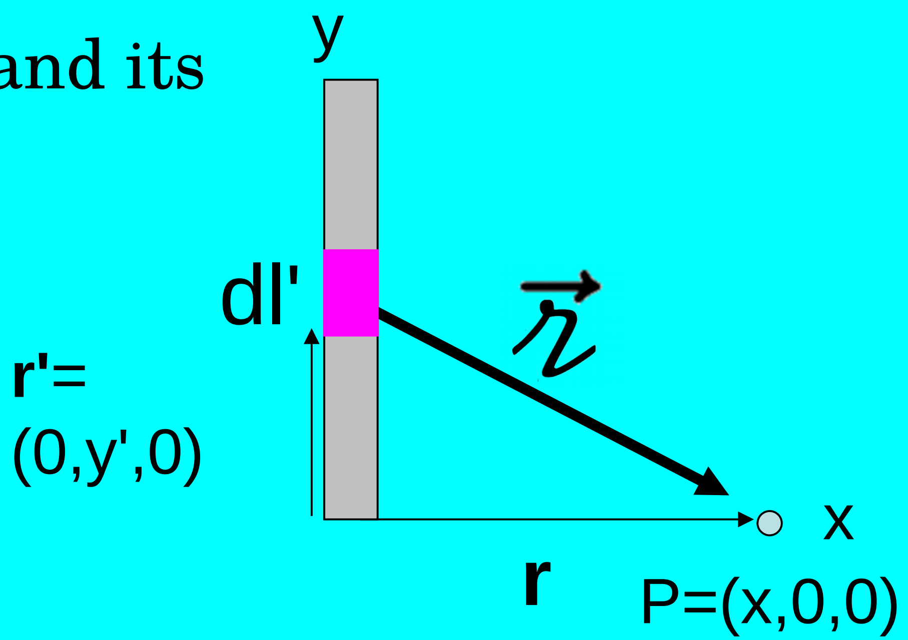
A) $\int_0^x dx'$

B) $\int_x^{y'} dx'$

C) $\int_y^{y'} dl'$

D) $\int_{l'}^L dy'$

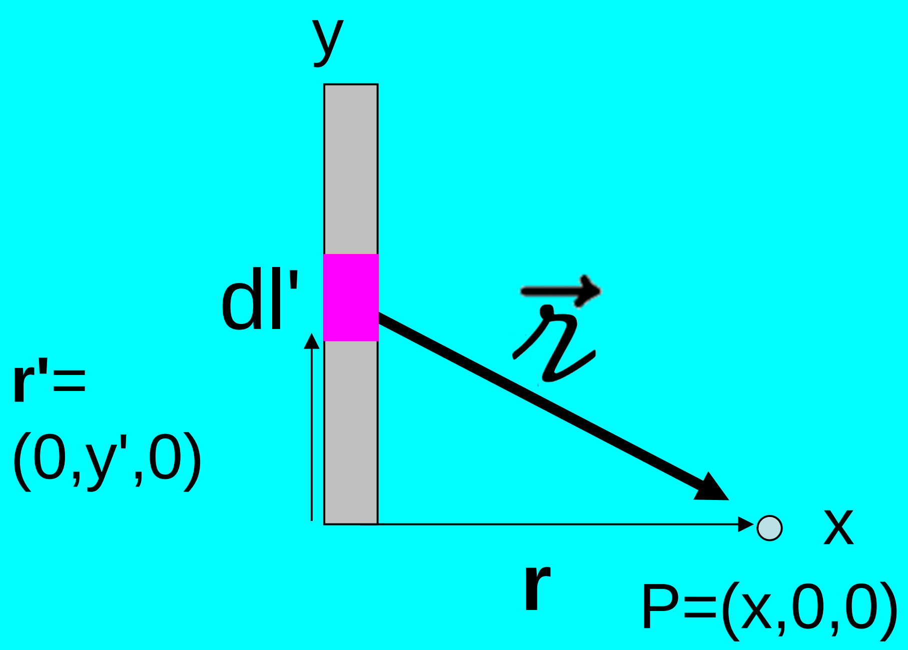
E) $\int_0^L dy'$



E at P from thin line of length L (uniform charge density λ) is

$$\vec{E} = \frac{1}{4\pi\epsilon_0}\int \frac{1}{\mathscr{r}^2}\hat{\mathscr{r}}\,\lambda\, dl'$$

$\hat{\mathscr{r}}$ is:



A) $x\,\hat{\mathbf{x}}$

B) $dl'\,\hat{\mathbf{y}}$

C) $\dfrac{x\,\hat{\mathbf{x}} - dl'\,\hat{\mathbf{y}}}{\sqrt{x^2 + y'^2}}$

D) $\dfrac{x\,\hat{\mathbf{x}} - dl'\,\hat{\mathbf{y}}}{\sqrt{x^2 + dl'^2}}$

E) something else

E at P from thin line of length L (uniform charge density λ) is

$$\vec{E} = \frac{1}{4\pi\epsilon_0}\int \frac{1}{\mathscr{r}^2}\hat{\mathscr{r}}\,\lambda\, dl'$$

A) $$\vec{E}_x = \frac{1}{4\pi\epsilon_0}\int dy' \frac{y'}{x^3}$$

B) $$\vec{E}_x = \frac{1}{4\pi\epsilon_0}\int dy' \frac{x}{\left(x^2+y'^2\right)}$$

C) $$\vec{E}_x = \frac{1}{4\pi\epsilon_0}\int dy' \frac{y'}{\left(x^2+y'^2\right)^{3/2}}$$

D) $$\vec{E}_x = \frac{1}{4\pi\epsilon_0}\int dy' \frac{x}{\left(x^2+y'^2\right)^{3/2}}$$