0.20 m

0V _____

0.080m

12V _____

0V 200V
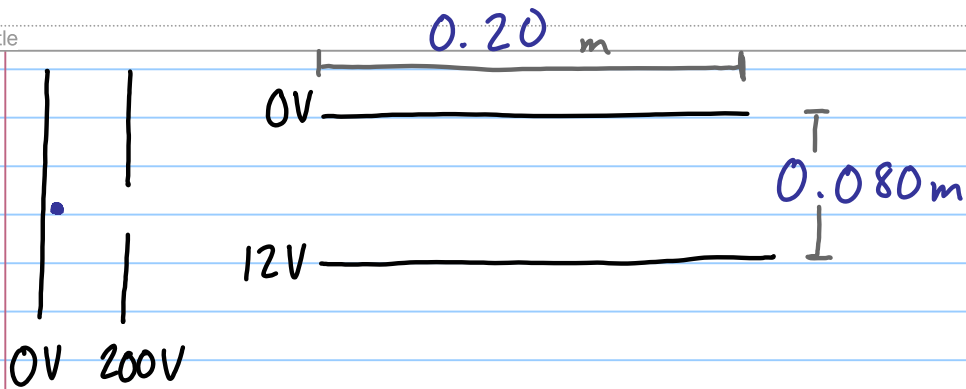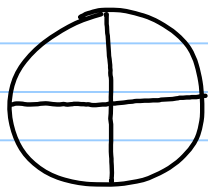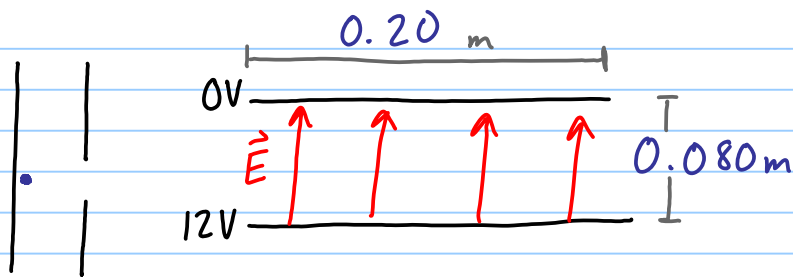
For the CRT shown find:

a.) The magnitude and direction of the electric field between the deflecting plates.

b.) The acceleration of the electrons while being deflected

c.)

front view

Where on the screen would the electron beam strike?

0.20 m

OV ———————

$\vec{E}$ ↑ ↑ ↑ ↑   0.080 m

12V ———————

a.) $\vec{E} = \dfrac{\Delta V}{d} = \dfrac{12\,V}{0.080\,m} = 150\,\dfrac{V}{m}$ or N/c

up ✓

b.) $F_{net} = ma$

$F_E = ma$

$a = \dfrac{F_E}{m} = \dfrac{2.4\times10^{-17}\,N}{9.11\times10^{-31}\,kg}$

$= 2.6\times10^{13}\,m/s^2$

$F_E = \vec{E}q$

$= (150\,N/c)(1.6\times10^{-19}\,C)$

$= 2.4\times10^{-17}\,N$

c.)