

and since

$$V = -\frac{E}{B} = -\frac{(V/d)}{B} = \frac{-V}{Bd}$$

hence $B = \frac{-V}{vd}$

But $B = \mu_0 \frac{N}{l} i$

So $\mu_0 \frac{N}{l} i = \frac{-V}{vd}$

$i = \frac{-V}{vd \mu_0 (N/l)}$

See earlier comments about the sign.

Putting the numbers into the above expression,

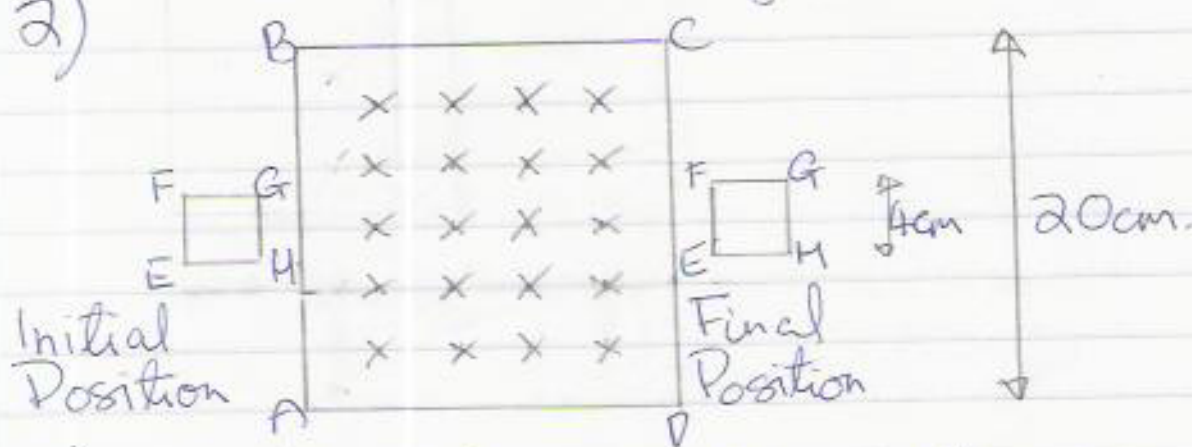
$i = \frac{-300V}{10^5 \text{ m/s} \times 0.1 \text{ m} \times 4\pi \times 10^{-7} \text{ T m A}^{-1} \times 2 \times 10^4 \text{ m}^{-1}}$

$= 1.194 \text{ A}$ — Only quote to 3 s.f. as the majority of the data is only to 3 s.f.s

$\frac{14}{16}$

I'm generous with advice. I would also advise her to take a course in physics so that she doesn't have to ask amateurs for their thoughts. (For check see back of previous page).

2)



a) The flux through the coil EFGH is given by $\Phi = BA$ where A is the area of the coil inside the field. This area increases from zero, when the coil is wholly outside the field, steadily to a maximum, when the loop is