1. - Careful with units of frequency

2. a) - Start with wave eq. on (lecture 6) slide 13
- Rewrite eq component-wise
- Note $\mu_0 c^2 = \frac{1}{\varepsilon_0}$
- Insert eqs for v_x & v_y, slide 12
- Notice ω_p^2 when it pops up
- Reorganize until you recognize matrix eq.

2. b) - Start with given hint
- Bring $\frac{c^2 k^2}{\omega^2}$ to the left-hand-side
- Might want to use definition of ω_n^2 back and forth (more than once)
- Final expression given on slide 13

3. - Solve $ME = 0$ for E_y
- See given hint
- You will find that $\bar{E}$ is simplified
- Then use a Maxwell's eq.

4. - X-wave dispersion relation
= the one on slide 13
= solution of (2b)
- Algebra $\Rightarrow$ two 2nd order polynomial eqs. for ω (slide 15)