Q: One hundred antennas send the same waves with the following function

$$E = 0.02\sin(\omega t + \varepsilon)\frac{V}{m}$$

These waves converge to one point. Obtain the brind domain if

a) All waves are in phase (coherent sources) and
b) these waves have random phase differences (cators).

Sol:

a)

$$E_T = 100 * 0.02 = 2$$

Because they are all in phase.

b)

$$E_T = \sqrt{0.02^2 + \cdots} = \sqrt{100 \times 0.02^2} = 10 * 0.02 = 0.2$$

Because they are all out of phase, so we have to calculate its rms.