R. Knight 34.43

A loop antenna, such as is used on a television to pick up UHF broadcasts, is 25 cm in diameter. The plane of the loop is perpendicular to the oscillating magnetic field of an f=150 MHz electromagnetic wave. The magnetic field through the loop is $B = (20\ nT)\sin(w\,t)$. Here $w = 2\ pi\ f$ = circular frequency.

a. what is the maximum EMF induced in the antenna?

b. what is the maximum EMF induced in the antenna if the loop is turned 90 degrees to be perpendicular to the oscillating electric field?