K^+ mesons can be photoproduced by the reaction

$$\gamma + p \rightarrow K^+ + \Lambda .$$

(1) Determine the threshold (minimum) photon energy, as measured in the laboratory (the rest-frame of the proton), for the above reaction to occur.

(2) Determine if it is possible for either

(a) the K^+

or

(b) the Λ

to be at rest in the laboratory, and determine for what photon energy this could happen.

Note the following rest-mass energies:

$$m_p c^2 = 938 \text{ Mev}$$
$$m_\Lambda c^2 = 1115 \text{ Mev}$$
$$m_{K^+} c^2 = 494 \text{ Mev}$$