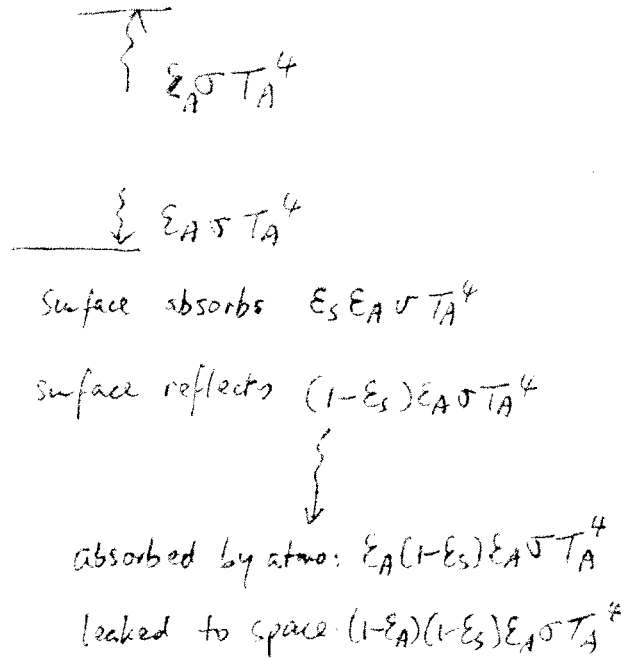
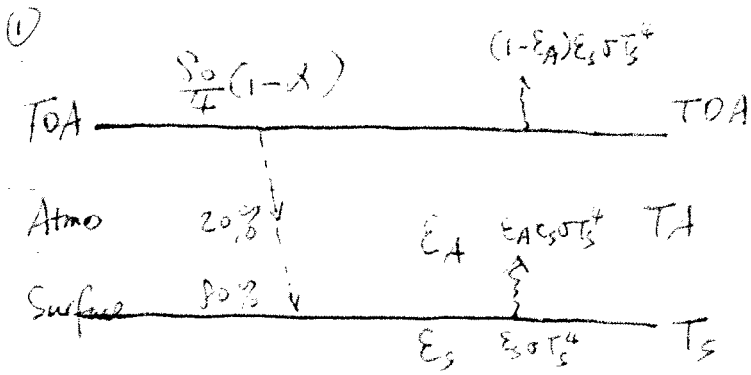


Quiz #4

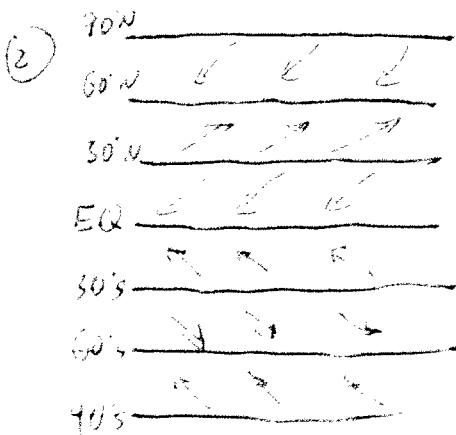


∴ Surface: absorbed solar + absorbed LW = emitted LW

$$0.80 \frac{S_0}{4}(1-\alpha) + \epsilon_s \epsilon_A \sigma T_A^4 = \epsilon_s \sigma T_s^4$$

$$\text{Atmo: } 0.20 \frac{S_0}{4}(1-\alpha) + \epsilon_A \epsilon_s \sigma T_s^4 + \epsilon_A(1-\epsilon_s)\epsilon_A \sigma T_A^4 = 2 \epsilon_A \sigma T_A^4$$

$$\text{TOA: } \frac{S_0}{4}(1-\alpha) = (1-\epsilon_A)\epsilon_s \sigma T_s^4 + (1-\epsilon_A)(1-\epsilon_s)\epsilon_A \sigma T_A^4 + \epsilon_A \sigma T_A^4$$



prevailing wind patterns