12 Define I_n, J_n, K_n as follows:

$$I_n = \int_0^{\frac{\pi}{2}} \frac{1}{(2+\cos\theta)^n} d\theta \quad (n = 1, 2, 3 \cdots)$$

$$J_n = \int_0^{\frac{\pi}{2}} \frac{\cos\theta}{(2+\cos\theta)^n} d\theta \quad (n = 1, 2, 3 \cdots)$$

$$K_n = \int_0^{\frac{\pi}{2}} \frac{\cos^2\theta}{(2+\cos\theta)^n} d\theta \quad (n = 1, 2, 3 \cdots)$$

Find the recurrence relations between $I_n,\ J_n,\ K_n$ $(n = 1, 2, 3 \cdots)$ and find $I_1,\ I_2,\ I_3,\ I_4$.