AQ. Find the characteristic values and associated non-trivial solutions (if any) of the equation

$$h(x) = \lambda \int_0^{2\pi} \sin x \cos y \, h(y) dy. \tag{1}$$

RQ. Consider the integral equation

$$t = \int_0^t \left(e^t + e^x \right) \varphi(x) dx. \tag{2}$$

(a) Tick the appropriate option in each case (only one). Integral equation (2) is:

1. Volterra	Fredholm
2. Linear	Non-Linear
3. Homogeneous	Non-Homogeneous
4. Singular	Non-Singular

(b) Transform the first kind integral equation (2) to a second kind integral equation.

"If you believe it will work out, you'll see opportunities. If you believe it won't, you will see obstacles." — Wayne Dyer.