

Problem 2. Find a function f defined on the set $(-\infty, \infty)$ that solves the integral equation:

$$\int_0^t \left[\int_0^\tau \left[\int_0^\omega f(s) ds \right] d\omega \right] d\tau + \int_0^t \left[\int_0^\tau f(s) ds \right] d\tau + \int_0^t f(\tau) d\tau + f(t) = t^2$$