

Problem 1.

Solve the system of equations

$$\begin{cases} x + y = a \\ \sin^2 x - \sin^2 y = b \end{cases}$$

a and b some
real numbers

Problem 2.

Solve the following equation

$$x^5 - 10x^3(1-x^2) + 5x(1-x^2)^2 = \frac{1}{2}$$