Solve the following problems for tolerance of 10^-4 Using Newton's Raphson method for solving set nonlinear equations system.

Prob. #1

$$3x_1 - \cos(x_2 x_3) - \frac{1}{2} = 0,$$

$$x_1^2 - 625x_2^2 - \frac{1}{4} = 0,$$

$$e^{-x_1 x_2} + 20x_3 + \frac{10\pi - 3}{3} = 0$$

Use xo=(0.1,0.1,-0.1)

Prob. #2

$$x_1^2 + x_2 - 37 = 0,$$
$$x_1 - x_2^2 - 5 = 0,$$
$$x_1 + x_2 + x_3 - 3 = 0.$$

Prob. #3

$$6x_1 - 2\cos(x_2 x_3) - 1 = 0,$$
$$9x_2 + \sqrt{x_1^2 + \sin x_3 + 1.06} + 0.9 = 0,$$
$$60x_3 + 3e^{-x_1 x_2} + 10\pi - 3 = 0.$$

Use $x^{(0)} = (0,0,0)^t$.

Prob. #4

$$x_1^3 + x_1^2 x_2 - x_1 x_3 + 6 = 0,$$
$$e^{x_1} + e^{x_2} - x_3 = 0,$$
$$x_2^2 - 2x_1 x_3 = 4.$$

Use $x^{(0)} = (-1, -2, 1)^t$.

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