QUIZ 2

Q1. Determine a homogeneous linear differential equation with constant coefficients having the fundamental set of solutions:

$$y_1 = 3, \quad y_2 = 10x, \quad y_3 = e^{-x} \cos x, \quad y_4 = e^{-x} \sin x, \quad y_5 = 5x^2.$$

Q2. Find the general solution of the differential equation

$$2x^3 y''' - 4xy' = 0, \quad x > 0.$$

Q3. Determine only the form of the particular solution y_p of the differential equation

$$y^{(4)} - 16y = 2x^3 e^{2x} + (1+x) \sin 4x - 7e^{-2x} \cos 2x + 6x^4 \sin 2x$$