DIRECTIONS

Provide complete legible solutions to the following problems in the space provided. Be sure to supply all the details that support your solutions

Problems 1 and 2. Use the Laplace transform to solve the given initial-value problem.

1      $y' + y = \delta(t-1), \; y(0) = 6$

2. $y'' + y = \delta(t-6\pi), \; y(0) = 0, \; y'(0) = 1$
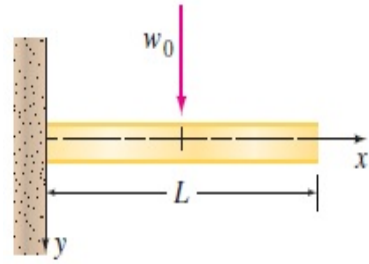
3. A uniform beam of length L carries a concentrated load w_0 at $x = 0.5L$.
    See the figure below.

    Use the Laplace transform to solve the differential

    $$EI\frac{d^4y}{dx^4} = w_0\delta(x-0.5L), \quad 0 < x < L,$$

    equation subject to the given boundary conditions.
    $y(0) = 0$, $y'(0) = 0$, $y''(L) = 0$, and $y'''(L) = 0$

beam embedded at its left
end and free at its right end