MATH 316D W12

DD1 Individual Quiz

1. **Add**. "An RLC circuit with a resistor of 4 Ω, a capacitor of .1 F, and an inductor of 2 H is connected in series to a voltage source of $E(t) = 4t^2 + t - 3$, with initial conditions $I(0) = I'(0) = 0$. Given this scenario create an IVP that represents the system, in the form $\vec{x}'(t) = \mathbb{A}\vec{x} + \vec{b}$."

   (a) $\begin{bmatrix} x_1'(t) \\ x_2'(t) \end{bmatrix} = \begin{bmatrix} 0 & 1 \\ -5 & -2 \end{bmatrix} \begin{bmatrix} x_1(t) \\ x_2(t) \end{bmatrix} + \begin{bmatrix} 0 \\ 4t^2 + t - 3 \end{bmatrix}$; $x_1(0) = x_2(0) = 0$

   (b) $\begin{bmatrix} x_1'(t) \\ x_2'(t) \end{bmatrix} = \begin{bmatrix} 0 & 1 \\ -.2 & -2 \end{bmatrix} \begin{bmatrix} x_1(t) \\ x_2(t) \end{bmatrix} + \begin{bmatrix} 0 \\ 8t + 1 \end{bmatrix}$; $x_1(0) = x_2(0) = 0$

   (c) $\begin{bmatrix} x_1'(t) \\ x_2'(t) \end{bmatrix} = \begin{bmatrix} 0 & 1 \\ -5 & -2 \end{bmatrix} \begin{bmatrix} x_1(t) \\ x_2(t) \end{bmatrix} + \begin{bmatrix} 0 \\ 8t + 1 \end{bmatrix}$; $x_1(0) = x_2(0) = 0 \implies$ **Correct**

   (d) None of the above.

2. **Keep**.

3. **Keep**.

4. **Keep**.

5. **Keep**.

6. **Keep**.

DD2 Group Quiz

1. **Keep** but please reword part **a** to read, "Find the first five non-zero...".

2. **Keep**.

DD3 Weekly Quiz

1. **Keep**.

2. **Keep**.

3. **Keep**.

4. **Keep**.

5. **Keep**.

6. **Keep**.

7. **Keep**.

8. **Keep** but please make sure that the question reads as follows. "Write out the power series expansion for $(1 - t)y''$."

9. **Keep**.

10. **Keep**.