MATH 246 Homework 2.9a
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Directions:

- Work should be done neatly and on separate paper.

- Enough work must be shown so that the steps you are taking is clear.

1. Calculate $\mathcal{L}\left[e^{-9t}\right]$ using the definition of the Laplace Transform.

2. Calculate $\mathcal{L}\left[3t^5\right]$.

3. Calculate $\mathcal{L}\left[1 + t^3 + e^t \sin(5t)\right]$.

4. Find y with $\mathcal{L}\left[y\right] = \frac{3}{(s+7)^4}$.

5. Find y with $\mathcal{L}\left[y\right] = \frac{s-1}{s^2+2s+13}$.

6. Use Laplace Transforms to solve the IVP:

$$y' = 2y + 1 \quad \text{with} \quad y(0) = 2$$