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


3. Calculate $L[1 + t^3 + e^t \sin(5t)]$.

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

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

6. Use Laplace Transforms to solve the IVP:

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