

Deterministic Math Models (550.251)

Quiz 9

Name Solutions

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Solve the first-order linear ODE:  $y' + 3y = e^t$ .

$$P(t) = 3 \quad \int P(t) dt = 3t \quad f(t) = e^{3t}$$

$$f(t) y(t) = \int P(t) Q(t) dt + C$$

$$e^{3t} y = \int e^{3t} (e^t) dt + C$$

$$e^{3t} y = \frac{1}{4} e^{4t} + C$$

$$\boxed{y = \frac{1}{4} e^t + C e^{-3t}}$$