

$$(3) \quad f(t) = \frac{1}{2} \left( t - \frac{1}{2} \right) \quad \dot{y} = t - 2y$$

$$f(t) = \frac{1}{2}t - \frac{1}{4}$$

$$f' = \frac{1}{2}$$

$$\frac{1}{2} = t - 2 \left( \frac{1}{2} \left( t - \frac{1}{2} \right) \right)$$

$$y = f(t) + Ce^{-2t}$$

$$= t - 2 \left( \frac{1}{2}t - \frac{1}{4} \right)$$

$$y' = f' - Ce^{-2t}$$

$$= t - t + \frac{1}{2} = \frac{1}{2}$$

$$= \frac{1}{2} - 2Ce^{-2t}$$

$$\dot{y} = t - 2y$$

$$\frac{1}{2} - 2Ce^{-2t} = t - 2 \left( \frac{1}{2}t - \frac{1}{4} + Ce^{-2t} \right)$$

$$\frac{1}{2} - 2Ce^{-2t} = t - t + \frac{1}{2} - 2Ce^{-2t}$$