Tutorial quiz

$$\frac{d^2V}{dt^2} + \frac{2dV}{dt} + V = 0$$

$V(0) = 10$

$\frac{dV(0)}{dt} = 0$

$$\lambda^2 + 2\lambda + 1 = 0$$

$$\lambda = -1$$

$$V_c(t) = (A + Bt)e^{-t}$$

$$10 = (A + B(0))e^0$$

$$10 = A$$

$\frac{dV(0)}{dt} = 0$

$$\frac{dV_c(t)}{dt} = -(A + Bt)e^{-t} + Be^{-t}$$

$$0 = -(A + B(0))e^0 + Be^0$$

$$-A + B = 0$$

$$A = B$$

$A = 10$

$B = 10$

$$V_c(t) = (10 + 10t)e^{-t}$$