

$$(14) \quad y = x^4 e^x$$

$$y' = 4x^3 e^x + x^4 e^x$$

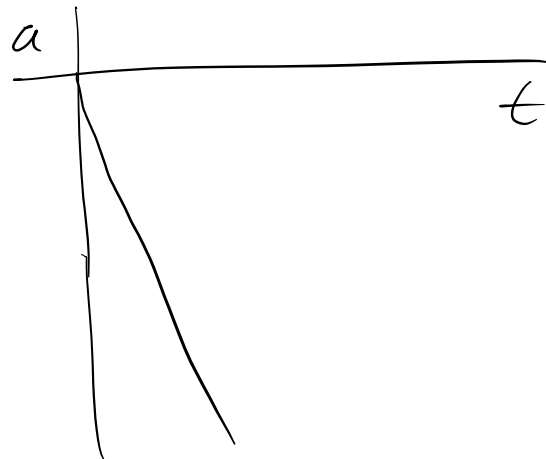
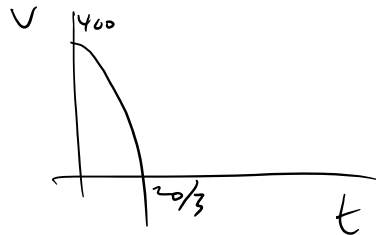
$$y'' = 4x^3 e^x + 12x^2 e^x + (4x^3 e^x + x^4 e^x)$$
$$= e^x (x^4 + 8x^3 + 12x^2)$$

$$y''' = e^x (x^4 + 12x^3 + 12x^2) +$$
$$e^x (4x^3 + 24x^2 + 24x)$$

$$h = -3t^3 + 400t$$

$$v = -9t^2 + 400$$

$$a = -18t$$



$$0 = -9t^2 + 400$$

$$t = \sqrt{\frac{400}{9}} = \frac{20}{3}$$