15.10

$y' = ky \qquad k = 0,1 \xrightarrow{per\ h} h^{-1}$

$y(0) = 1000$

a)

$y(6) = ???$

$y' - ky = 0$

$g(x) = -k \qquad G(x) = -kt \qquad IF = e^{-kt}$

$y \cdot e^{-kt} = \int 0\, dt = c$

$y = C\, e^{kt}$

$y(0) = C\, e^{0} = 1000 \qquad C = 1000$

$y(6) = 1000 \cdot e^{0,1 \cdot 6} = 1000 \cdot e^{0,6}$

$Sr: y = 1000 \cdot e^{0,1t} \qquad y(6) = 1000 \cdot e^{0,6}$

b)

$y(0) = 1000$

$y(t_0) = 2000$

$y(t_0) = 1000 \cdot e^{0,1 \cdot t_0} = 2000$

$y(t_0) = e^{0,1 \cdot t_0} = 2 \qquad t_0 = \dfrac{\ln 2}{0,1} = 10 \cdot \ln 2$

$Sv: 10 \cdot \ln 2\ h$