

3a)  $y'' = -y$

$y(x) = \cos x$

$-\cos x = -(\cos x)$

$-\cos x = -\cos x$

$y'(\cos x) = -\sin x$

$y''(\cos x) = -\cos x$

b)  $y'' - y = 0 \leadsto y'' = y$

$y(x) = \cosh x$

$\cosh x = \cosh x$

$y'(\cosh x) = \sinh x$

$y''(\cosh x) = \cosh x$

c)  $t y' - y = t^2 \leadsto y' = \frac{t^2 + y}{t}$

$y(t) = 3t + t^2$

$y'(3t + t^2) = 3 + 2t$

$y'(t) = 3 + 2t$

$3 + 2t = \frac{t^2 + 3t + t^2}{t}$

$3t + 2t^2 = 2t^2 + 3t$