Mon

Name	M#

Solve the following ODEs

sep

$dy/dt = (1+y)e^t$

$\int dy/(1+y) = \int e^t\,dt + C$

$\ln(1+y) = e^t + C$

- $y' = (1+y)e^t \quad y(0) = 1$

$\ln(1+1) = e^0 + C$

$C = \ln(2) - 1$

1. $y' = \frac{\sin(y)}{\cos(y)}(t^2+1)$

■ $t^2 y' + t y = t^3$ with $y(1) = 2$

$y' + \frac{1}{t} y = t$

$y' + p(t) y = s(t)$

$v(t) = e^{\int \frac{1}{t} dt}$

$v(t) = e^{\ln(t)} = t$

$t y' + y = t^2$

$(t y)' = t^2$

$t y = t^3/3 + C$

$y = t^2/3 + C/t$

$C = 2 - 1/3$

$2 = 1/3 + C/1$

2. $e^t y' + 2 e^t y = e^t$ with $y(0) = 1$