

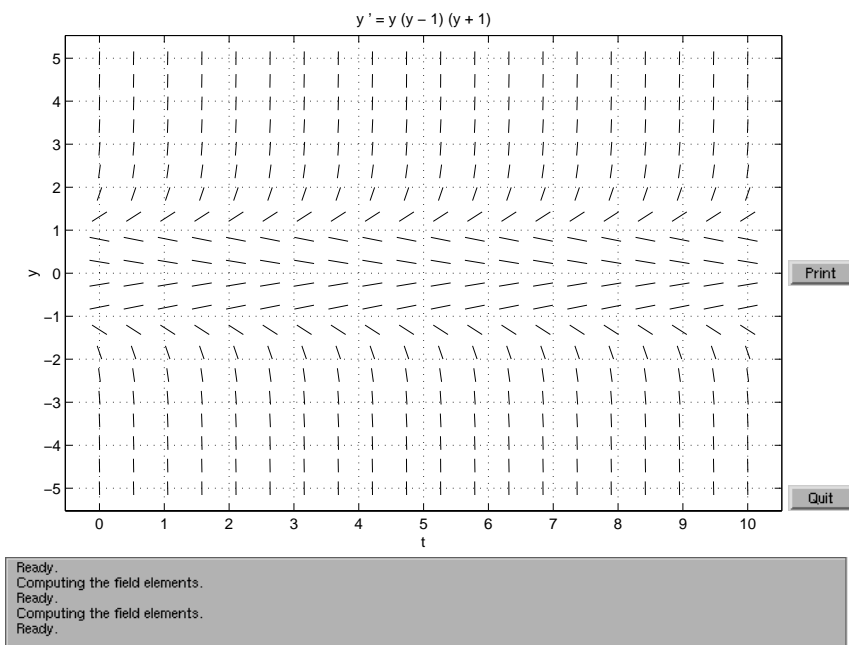
IX. Make these conversions between complex exponentials and complex numbers :

a)  $e^{-3i\pi/4} = \text{????}1 + \text{????}i$

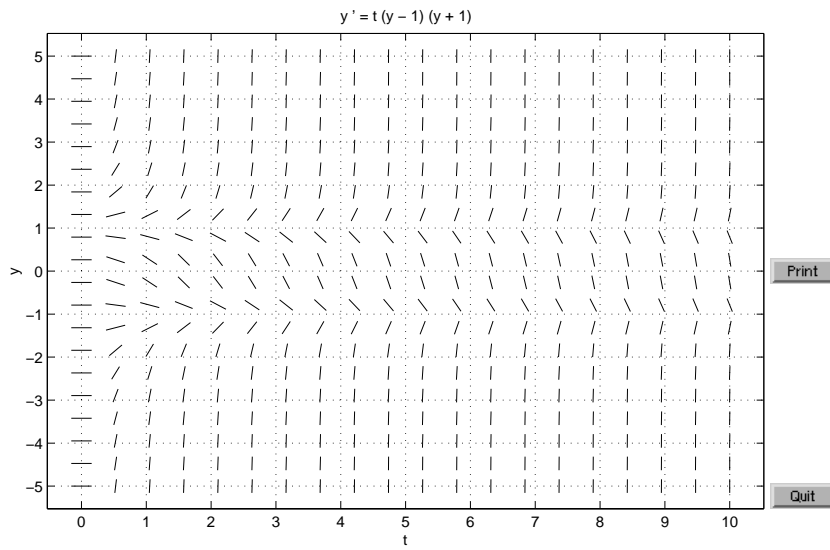
b)  $3 + 3i = \exp(\text{????})$

X. For the ODE  $y' = y(y^2 - 1)$ , choose the graph below that best represents its direction fields. Using this graph and the equation, a) plot the solutions for the initial conditions for  $\{y(1) = 2, y(1) = 0.5, y(1) = 0, y(1) = -0.4, y(1) = -0.5\}$  (5 trajectories in all), b) based on the graph, estimate the values of  $t > 0$  for which the solution passing through  $y(1) = 2$  is valid, c) based on the graph, estimate the limit of  $y(t)$  as  $t \rightarrow \infty$  for the solution passing through  $y(1) = 0.5$ .

Graph 1.



Graph 2.



Ready.  
Computing the field elements.  
Ready.  
Computing the field elements.  
Ready.