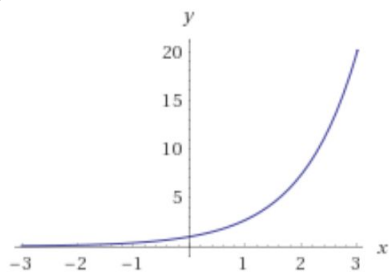


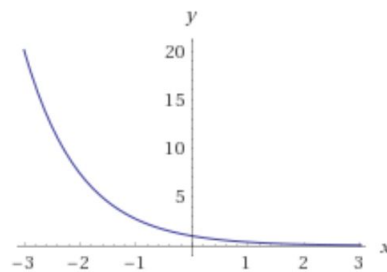
## Math 252: Graphs of Solutions to 2nd Order Linear DEs Homogeneous Case

Solutions of the form  $y = C_1e^{m_1x} + C_2e^{m_2x}$

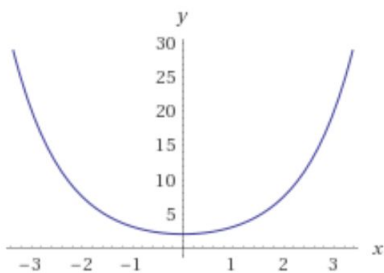
$$y = e^x$$



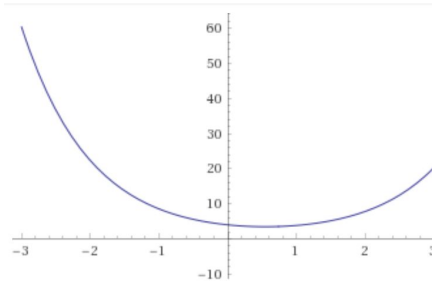
$$y = e^{-x}$$



$$y = e^x + e^{-x}$$

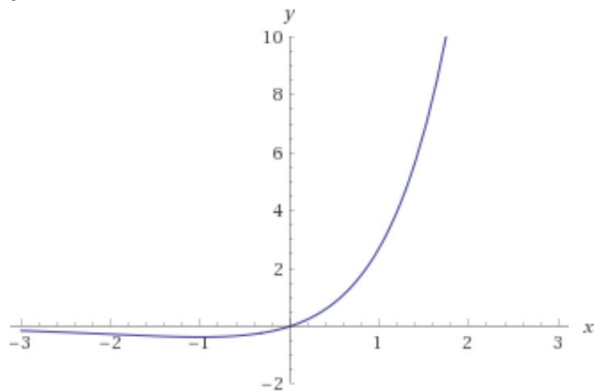


$$y = 2e^x + 3e^{-x}$$

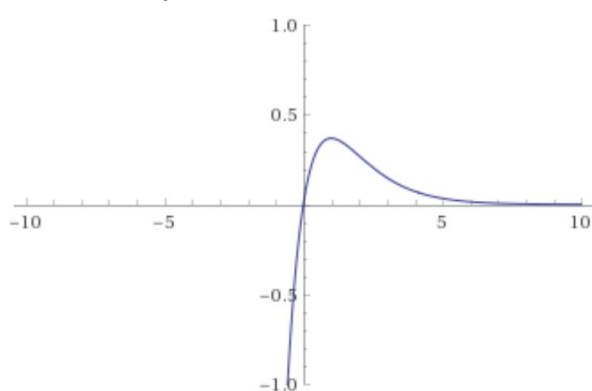


Solutions of the form  $y = (C_1 + C_2x)e^{mx}$

$$y = xe^x$$

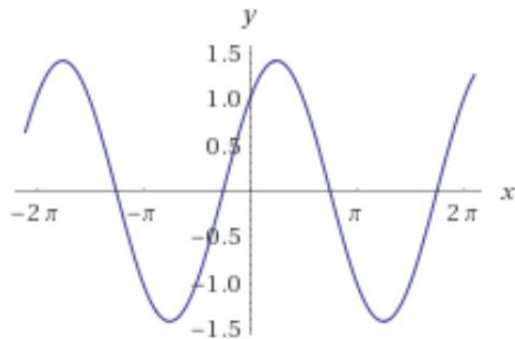


$$y = xe^{-x}$$



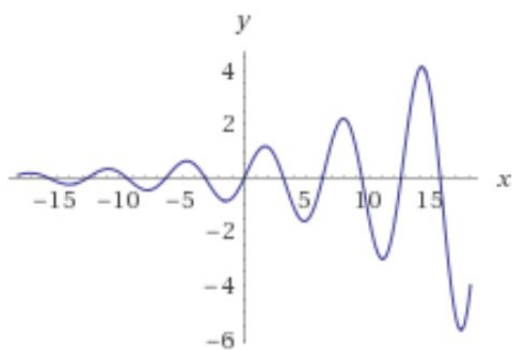
Solutions of the form  $y = C_1 \cos \beta x + C_2 \sin \beta x$

$$y = \cos x + \sin x$$

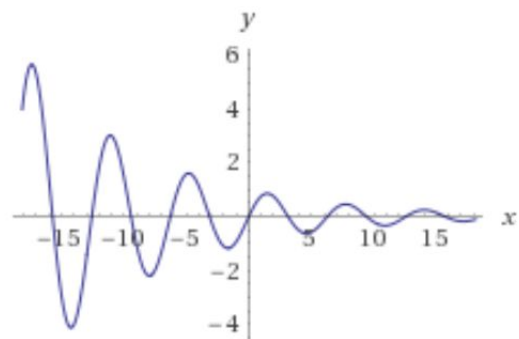


Solutions of the form  $y = e^{\alpha x}(C_1 \cos \beta x + C_2 \sin \beta x)$

$$y = e^{x/10} \sin x$$



$$y = e^{-x/10} \sin x$$



All graphs generated by:

Wolfram Alpha LLC. 2020. Wolfram|Alpha. <http://www.wolframalpha.com/>  
(accessed February 4, 2020).