



Differential Equations
Homogeneous Differential Equation
Solutions of Practice Problems

Solution 1: $\tan^{-1}\left(\frac{y}{x}\right) - \frac{1}{2}\ln\left|1 + \frac{y^2}{x^2}\right| = \ln x + k$

Solution 2: $\frac{1}{\sqrt{5}}\ln\left|\frac{2y - (1 + \sqrt{5})x}{2y - (1 - \sqrt{5})x}\right| = \ln(kx)$

Solution 3: $\frac{2}{\sqrt{3}}\tan^{-1}\left(\frac{2y+x}{\sqrt{3}x}\right) = \ln x + k$

Solution 4: $y + \sqrt{x^2 + y^2} = kx^2$

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