

# Math 2A First Order ODE Practice: Identifying the Approach to Solving a DE

<u>To show that a DE is</u>	<u>first write it in the standard form (identify values of all constants &amp; functions in template)</u>	<u>prove that</u>	<u>change standard form by</u>	<u>in new DE, prove that</u>
separable	$\frac{dy}{dx} = g(x)p(y)$	N/A	N/A	N/A
linear	$\frac{dy}{dx} + p(x)y = g(x)$	N/A	multiply by $\mu(x) = e^{\int p(x)dx}$ to get $a_1(x)\frac{dy}{dx} + a_0(x)y = b(x)$	$a_0(x) = \frac{d}{dx}a_1(x)$
exact				
exact after integrating factor involving only $x$				
exact after integrating factor involving only $y$				
exact after integrating factor of form $x^a y^b$				
homogeneous				
Bernoulli				