Math 1B Quiz #12

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Name: _____

1. (3 pts) Given that $y = \arctan(x)$ is a solution to the following differential equation, and find the most general solution:

$$y'' - y' - 12y = \frac{(1+x)^2}{(1+x^2)^2} - 12\arctan(x)$$

2. (3 pts) Solve the initial value problem:

$$y'' + 2y' + 5y = 0, \;\; y(0) = 1, \;\; y'(0) = -3$$

3. (4 pts) Solve the differential equation:

$$y'' - y' - 2y = 10\sin(x) + 4x$$