

QUIZ 7 FOR CALC 4

Name: _____ RUID: _____

- (1) (3 pt) Find the largest open intervals for the following differential equation where you are guaranteed to have a solution

$$\sin 2t y^{(4)}(t) + \tan t y(t) = t, y\left(\frac{\pi}{4}\right) = 0, y'\left(\frac{\pi}{4}\right) = 1, y''\left(\frac{\pi}{4}\right) = 0, y'''\left(\frac{\pi}{4}\right) = -1$$

- (2) (3 pt) Find the general solution of the equation

$$y''(t) - 4y'(t) + 4y(t) = \frac{e^{2t}}{1+t^2}$$

- (3) (2 pt) What is the integrating factor of the first order differential equation

$$y'(t) + p(t)y(t) = g(t)?$$

and what is the general solution?