

Attendance Quiz # 4 for Dr. Z.'s Calc4 for Sept. 16, 2013

NAME: (print!) \_\_\_\_\_ Section: \_\_\_\_\_

E-MAIL ADDRESS: (print!) \_\_\_\_\_

1. Without actually solving the diff.eq.s decide whether the following initial value problems have solutions and whether there are unique, for the specified intervals.

a.  $y'(t) - (t^2 + 1)y(t) = \cos^7 t$ ,  $-200 < t < 20$ ,  $y(1) = 3$

b.  $y'(t) + \frac{1}{t-4}y(t) = \sin^3 t$ ,  $3 < t < 6$ ,  $y(5) = 10$

2. Find the maximal open intervals for which the following first-order diff.eq. is guaranteed to have a unique solution.

$$y'(t) + \frac{t^2}{(t+1)^2 t^8 (t-1)^3 (t-2)} y(t) = \frac{t}{t-3} \quad .$$