

Name: \_\_\_\_\_

Recitation Section: \_\_\_\_\_

**Math 1553 Quiz 1: lines and planes and 1.1 (10 points, 10 minutes)**

1. (1 point each) In each case, determine whether the given equation in  $x$ ,  $y$ , and  $z$  is linear or non-linear. Circle your answer.

a)  $7x - \pi y = 2^{3/2}z$       LINEAR      NON-LINEAR

b)  $x + y + \frac{z}{3} = 0$       LINEAR      NON-LINEAR

2. (1 point each) True or False. Circle TRUE if the statement is always true. Otherwise, circle FALSE.

a) If a system of linear equations has two equations and three variables, then it must have at least one solution.      TRUE      FALSE

b) If a system of linear equations has three equations and two variables, then it must be inconsistent.      TRUE      FALSE

3. (3 points) Write a system of two linear equations in the variables  $x_1$  and  $x_2$  that is *inconsistent*. Briefly justify why your system is inconsistent.

4. (3 points) Find all points  $(x, y)$  where the lines given below intersect. Show your work!

$$\begin{aligned}x - y &= 3 \\ -2x + 4y &= -2.\end{aligned}$$