

Group: \_\_\_\_\_ Present: \_\_\_\_\_

1. In the following system of linear equations, regard  $a$  as a constant. Use Gaussian elimination to solve the system, and answer the questions: For which values of  $a$  does the system have no solutions? Exactly one solution? Infinitely many solutions?

$$x + 2y - 3z = 4$$

$$3x - y + 5z = 2$$

$$4x + y + (a^2 - 14)z = a + 2$$

No solutions for  $a =$  \_\_\_\_\_Exactly one solution for  $a$  \_\_\_\_\_Infinite number of solutions for  $a =$  \_\_\_\_\_