

NAME AND NETID:

**Question 1.** Using either the method of substitution or elimination, determine the value of  $a$  for which the following system of equations has no solution: *[4]*

$$2x - y = 10, \quad ax + 7y = 5.$$

**Question 2.** Use Gauss-Jordan elimination to solve the system of linear equations: *[6]*

$$x + y + 4z = 31, \quad 2x + 2y - z = 8, \quad 3x + 3y - 3z = 3.$$

**Bonus Question.** Use Gauss-Jordan elimination to solve the system of linear equations:

[4]

$$2x + 3y - 2z = 10, \quad 3x - 2y + 2z = 0, \quad 4x - y + 3z = -1.$$