

## Linear systems

1) Solve the following systems of linear equations and calculate the determinant:

a.  $3x + 6y + 9z = 39$

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

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

b.  $x + y + z = 6$

$$2x + 3y + z = 1$$

$$x - y + z = 3$$

2) Solve the following system of linear equations using pivoting:

a.  $x + y + z = 6$

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

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

3) What is the rank and linear dependence of the following linear system:

a.  $x + y + z = 2$

$$2x + 4y - 6z = 8$$

$$2x + 3y - 2z = 6$$