

Question 6**(6 marks)**

- (a) Solve the system of equations.

(3 marks)

$$x + y + z = 4$$

$$3x - y + z = 8$$

$$2x - y + z = 0$$

Suppose that the third equation in part (a) is changed to $2x - y + kz = 0$. The first two equations remain unchanged.

- (b) Determine the value of the constant k so that the changed system of equations has no solution. (3 marks)