Math 320 Linear Algebra
Assignment # 1

1. For each of the following find all solutions to the system of equations by **both** i) elimination with back substitution and ii) elimination only.

   (a)
   $$\begin{cases} 3x + 5y + 2z = 36 \\ 7x - 2y + 4z = 55 \\ -6x + 3y + 2z = -31 \end{cases}$$

   (b)
   $$\begin{cases} 3x_1 + 2x_2 + 2x_3 = 6 \\ 2x_1 - x_2 - 3x_3 = -10 \\ 4x_1 + 5x_2 + 7x_3 = 22 \end{cases}$$

   (c)
   $$\begin{cases} 3x + 2y + 6z + w = -6 \\ 2x - 3z + w = 8 \\ x + 2y + 9z = 4 \end{cases}$$

2. Find the coefficients a, b and c so that the graph of $f(x) = ax^2 + bx + c$ passes through the points $(1, 6), (-1, 16)$ and $(2, 10)$. You may use any method you want.