## 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)

$$
\left\{\begin{array}{l}
3 x+5 y+2 z=36 \\
7 x-2 y+4 z=55 \\
-6 x+3 y+2 z=-31
\end{array}\right.
$$

(b)

$$
\left\{\begin{array}{l}
3 x_{1}+2 x_{2}+2 x_{3}=6 \\
2 x_{1}-x_{2}-3 x_{3}=-10 \\
4 x_{1}+5 x_{2}+7 x_{3}=22
\end{array}\right.
$$

(c)

$$
\left\{\begin{array}{l}
3 x+2 y+6 z+w=-6 \\
2 x-3 z+w=8 \\
x+2 y+9 z=4
\end{array}\right.
$$

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