Exercise 1 [5 points]

Use the geometric approach to maximize \( Z = y - x \) subject to

\[
\begin{align*}
&x \leq 3 \\
&x + 3y \geq 6 \\
&x - 3y \geq -6 \\
&x, y \geq 0
\end{align*}
\]

Exercise 2 [5 points]

Solve the following system by using matrix reduction

\[
\begin{align*}
w + x + 2y + 7z &= 0 \\
w - 2x - y + z &= 0 \\
w + 2x + 3y + 9z &= 0 \\
2w - 3x - y + 4z &= 0
\end{align*}
\]

Coefficient Matrix: 

New System:

Reduced Matrix: (Show your work on the back of this page)

Solution:

\[
\begin{align*}
w &= \\
x &= \\
y &= \\
z &=
\]