Consider the following system of equations in 3 variables:

\[
\begin{align*}
    x + 2y - 7z &= 0 \\
    -2x - 3y + 9z &= 4 \\
    -2y + 10z &= -8
\end{align*}
\]

1. Write down the augmented matrix for the system

\[
\begin{bmatrix}
1 & 2 & -7 \\
-2 & -3 & 9 \\
-2 & 0 & 10
\end{bmatrix}
\]

2. Put the augmented matrix of the system in reduced row echelon form. Show all of your steps.

3. What is the general solution to the system? What does the solution set define geometrically?