1. Find the row reduced echelon form of the matrix 
\[ A = \begin{bmatrix} 0 & 0 & 1 & 8 & 2 \\ 0 & 0 & 2 & 4 \\ 0 & 0 & 0 & 1 & 2 \\ 2 & 16 & 0 & 0 & 4 \end{bmatrix} \]. Circle the pivots. [No partial credit.]

2. Write the system of four linear equations in four unknowns \((w, x, y, z)\) whose augmented matrix is \(A\) above.

3. The figure\(^1\) below represents a geometric interpretation of a system of three linear equations in three variables. What, exactly, does each plane represent? Is this system consistent or inconsistent? Why?

4. Define a **linear function** to be a function \(f : \mathbb{R} \to \mathbb{R}\) for which \(f(t) = mt\) for some constant \(m\).

   Using only this definition, prove that for any linear function and any real constant \(k\), 
   \[ f(kx + y) = kf(x) + f(y). \]

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\(^1\)Found at [https://oak.ucc.nau.edu/jws8/3equations3unknowns.html](https://oak.ucc.nau.edu/jws8/3equations3unknowns.html)