Ch1 Definitions

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Definition 1.6 : Augmented matrix, coefficient matrix

$$x + 2y + 3z = 7$$
$$4x + 5y + 6z = 8$$

Coefficient matrix is $\begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix}$

Augmented matrix is $\left(\begin{array}{ccc|c} 1 & 2 & 3 & 7 \\ 4 & 5 & 6 & 8 \end{array} \right)$

Definition 1.9   Equivalent systems of linear equations

- Equivalent if same solution sets.

Definition 1.13   Pivot of row in matrix

- the leftmost nonzero entry

Definition 1.22   Pivot columns, basic variables, free variables

- Pivot column : if it has a pivot

- Basic variable : x_i if ith column is pivot column

- Free variable : x_i if ith column is NOT pivot column

Definition 1.25 Consistent and Inconsistent Systems

Consistent : at least one solution

Inconsistent : no solution