Problem 1: Let

$$A = \begin{pmatrix} a & b & c \\ a & d & e \end{pmatrix}$$

with all of $a, b, c, d, e \in \mathbb{R}$ each distinct and nonzero.
Compute:
a) The Rank of A
b) The Nullity of A
c) A basis for the row space of A
d) A basis for the column space of A that doesn't depend on a, b, c, d, e.