1) Find the matrix product below.

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & -3 \end{bmatrix}\begin{bmatrix} 0 & 2 & 3 \\ 0 & 1 & 4 \\ 2 & 0 & 3 \end{bmatrix}$$

$$\begin{bmatrix} 0+0+6 & 2+2+0 & 3+8+9 \\ 0+0-6 & 8+5+0 & 12+20-9 \end{bmatrix} = \begin{bmatrix} 6 & 4 & 20 \\ -6 & 13 & 23 \end{bmatrix}$$

2) Given the linear system below, find A, $\vec{x}$ and $\vec{b}$ such that $A\vec{x} = \vec{b}$ is the corresponding matrix equation.

$$2x + 3y - 5z = 2$$
$$4x + 7y \quad\quad = 13$$

$$A = \begin{bmatrix} 2 & 3 & -5 \\ 4 & 7 & 0 \end{bmatrix}$$

$$\vec{x} = \begin{bmatrix} x \\ y \\ z \end{bmatrix}$$

$$\vec{b} = \begin{bmatrix} 2 \\ 13 \end{bmatrix}$$