Problem # 3. Letting $X = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, we get

$$\begin{bmatrix} 1 & 3 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} a & b \\ c & d \end{bmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \begin{bmatrix} 1 & 3 \\ 0 & 1 \end{bmatrix},$$

that is,

$$\begin{bmatrix} a + 3c & b + 3d \\ c & d \end{bmatrix} = \begin{bmatrix} a & 3a + b \\ c & 3c + d \end{bmatrix},$$

from which we get the system of linear equations

$$a + 3c = a$$
$$b + 3d = 3a + b$$
$$c = c$$
$$d = 3c + d.$$

Solving the system, we get $c = 0$, $d = a$, where a and b can be any numbers.

Answer: $X = \begin{bmatrix} a & b \\ 0 & a \end{bmatrix}$, where a and b can be any numbers.