8.
$$\mathbf{A} = \begin{pmatrix} 3 & 1 & -1 \\ 1 & 1 & 1 \\ k & 3 & 6 \end{pmatrix} \qquad k \neq 0$$

(a) Find, in terms of k, $\mathbf{A}^{-1}$

(4)

(b) Determine, in simplest form in terms of k, the coordinates of the point where the following planes intersect.

$$3x + y - z = 3$$
$$x + y + z = 1$$
$$kx + 3y + 6z = 6$$

(3)