

$$1) \quad V = \det \begin{pmatrix} 1 & 2 & 4 \\ 2 & 0 & 0 \\ 1 & 5 & 2 \end{pmatrix}$$

$$\begin{vmatrix} 1 & 2 & 4 \\ 2 & 0 & 0 \\ 1 & 5 & 2 \end{vmatrix} = \overbrace{\begin{vmatrix} 0 & 0 \\ 5 & 2 \end{vmatrix}}^0 - 2 \begin{vmatrix} 2 & 0 \\ 1 & 2 \end{vmatrix} + 4 \begin{vmatrix} 2 & 0 \\ 1 & 5 \end{vmatrix} = -8 + 40 = 32$$

$$\boxed{V = 32}$$

2)

they all lie on the same plane