1) $v_1 = (5, -2, 1)$, $v_2 = (0, 4, 6)$ e $v_3 = (-5, 8, 8)$

$$\left[\begin{array}{ccc|cc} 5 & 0 & -5 & 10 & 10 \\ -2 & 4 & 8 & 2 & -2 \\ 1 & 6 & 8 & 8 & 5 \end{array}\right] \quad \frac{1}{5} l_1 , \frac{1}{2} l_2$$

$$\left[\begin{array}{ccc|cc} 1 & 0 & -1 & 2 & 2 \\ -1 & 2 & 4 & 1 & -1 \\ 1 & 6 & 8 & 8 & 5 \end{array}\right] \quad l_2 + l_1$$

$$\left[\begin{array}{ccc|cc} 1 & 0 & -1 & 2 & 2 \\ 0 & 2 & 3 & 3 & 1 \\ 1 & 6 & 8 & 8 & 5 \end{array}\right] \quad -l_1 + l_3$$

$$\left[\begin{array}{ccc|cc} 1 & 0 & -1 & 2 & 2 \\ 0 & 2 & 3 & 3 & 1 \\ 0 & 6 & 9 & 6 & 3 \end{array}\right] \quad \frac{1}{2} l_2$$

$$\left[\begin{array}{ccc|cc} 1 & 0 & -1 & 2 & 2 \\ 0 & 1 & \frac{3}{2} & \frac{3}{2} & \frac{1}{2} \\ 0 & 0 & 0 & -3 & 0 \end{array}\right] \quad -6 l_2 + l_3$$

A partir da matriz escalonada é possível concluir que o vetor (10, -2, 5) é combinação linear dos vetores v1, v2 e v3.

2) $\begin{vmatrix} 5 & -2 & 1 \\ 0 & 4 & 6 \\ -5 & 8 & 8 \end{vmatrix} = 160 + 60 - (-20 + 240) = 0$

Logo os vetores são linearmente dependente.

$(0, 4, 6) = \alpha(5, -2, 1) + \beta(-5, 8, 8)$

$0 = 5\alpha - 5\beta \qquad \alpha = \beta$

$4 = -2\alpha + 8\beta \qquad 4 = -2\alpha + 8\alpha$

$6 = \alpha + 8\beta \qquad 4 = 6\alpha$

$\beta = \alpha = \frac{2}{3}$

Logo $(0, 4, 6) = \frac{2}{3}(5, -2, 1) + \frac{2}{3}(-5, 8, 8)$ //