a.

$$Y = \text{Sigmoid} \times \begin{bmatrix} -8.4913 & -5.7605 & -6.2857 & 12.2002 \end{bmatrix} \times \left(\text{Sigmoid} \times \begin{bmatrix} 4.0104 & 3.7868 & -6.0784 \\ -0.3395 & 0.6314 & 2.0088 \\ 2.9316 & 2.6832 & -4.4733 \\ 7.2526 & 7.3698 & -3.3711 \end{bmatrix} \times \begin{bmatrix} 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 \\ 1 & 1 & 1 & 1 \end{bmatrix} \right)$$

$$\text{Sigmoid} = \frac{1}{1 + e^{-z}}$$

$$f(X_1, X_2, X_3) = 1 / (1 + e\text{^}-(\quad (-8.4913) / (1 + e\text{^}-(4.0104 X_1 + 3.7868 X_2 + (-6.0784) X_3)) + (-5.7605) / (1 + e\text{^}-((-0.3395) X_1 + 0.6314 X_2 + 2.0088 X_3)) + (-6.2857) / (1 + e\text{^}-(2.9316 X_1 + 2.6832 X_2 + (-4.4733) X_3)) + 12.2002 / (1 + e\text{^}-(7.2526 X_1 + 7.3698 X_2 + (-3.3711) X_3))))$$