Problem 1.

$$z^{(1)} = W_1 x + b_1 = \begin{bmatrix} 1\times1 + (-2)\times(-1) \\ 3\times1 + 4\times(-1) \end{bmatrix} + \begin{bmatrix} 1 \\ 0 \end{bmatrix} = \begin{bmatrix} 4 \\ -1 \end{bmatrix}$$

$$a^{(1)} = ReLU(z^{(1)}) = \begin{bmatrix} 4 \\ 0 \end{bmatrix}$$

$$z^{(2)} = W_2 x + b_2 = \begin{bmatrix} 2\times4 + 2\times0 \\ 2\times4 + (-3)\times0 \end{bmatrix} + \begin{bmatrix} 0 \\ -4 \end{bmatrix} = \begin{bmatrix} 8 \\ 4 \end{bmatrix}$$

$$a^{(2)} = ReLU(z^{(2)}) = \begin{bmatrix} 8 \\ 4 \end{bmatrix}$$