

Solution:

The given matrices are:

$$[X_1 \ X_2] = \begin{bmatrix} 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 0 \\ 5 & 10 & 13 & 2 & 3 & 5 & 2 & 10 & 10 & 3 \end{bmatrix}^T$$

$$y = [-1 \ -1 \ -1 \ -1 \ -1 \ 1 \ 1 \ 1 \ 1 \ 1]^T$$

The gradient is: $\sum_{i=1}^{10} \sigma(y_i w_i x_i) y_i x_i$

The new weights are $\frac{-[-32]}{2} = [1.5 \ -1]$