Problem Set: Maximal Margin Classifier

1. Suppose we have the following data points: $x_1 = (1, 1), x_2 = (2, 3), x_3 = (3, 1)$ with $y_1 = 1, y_2 = -1, y_3 = -1$.

Find the maximal margin hyperplane and identify any support vectors.

2. Suppose we have the following data points: $x_1 = (1, 1), x_2 = (2, 3), x_3 = (3, 1), x_4 = (0, 2)$ with $y_1 = 1, y_2 = -1, y_3 = -1, y_4 = 1$.

Find the maximal margin hyperplane and identify any support vectors