Perceptron

\[ \sum_{i=1}^{n} w_i x_i + b \]

\( wX + b \geq 0 \) ?

\[ \rightarrow \quad \text{linear function} \rightarrow \quad \text{step function} \]
Perceptron Algorithm Goal: split data

move this until we get a good split
lines that are misclassified, want the line to come closer.

\[ 3x_1 + 4x_2 - 10 < 0 \]

\[ 3x_1 + 4x_2 - 90 < 0 \]

line should make small steps towards the line. But we don't want huge steps. That's why we use learning rate, e.g., 0.1.

\[ \begin{pmatrix} 3 & 4 & -10 \\ 4 & 5 & 1 \end{pmatrix} \times 0.1 \]

point is in pos. area

new line: \[ 2.6x_1 + 3.5x_2 - 10.1 = 0 \]