$$x_2 = x_1$$

$$x_2 - x_1 = 0$$
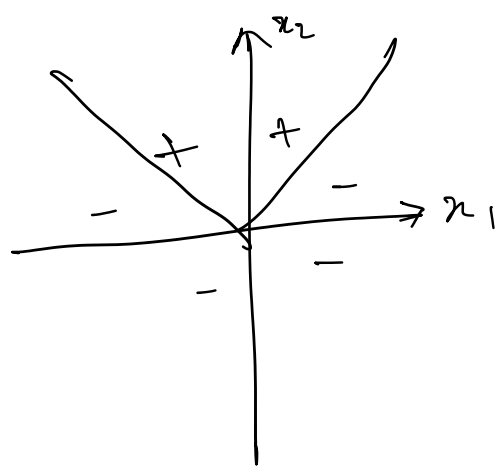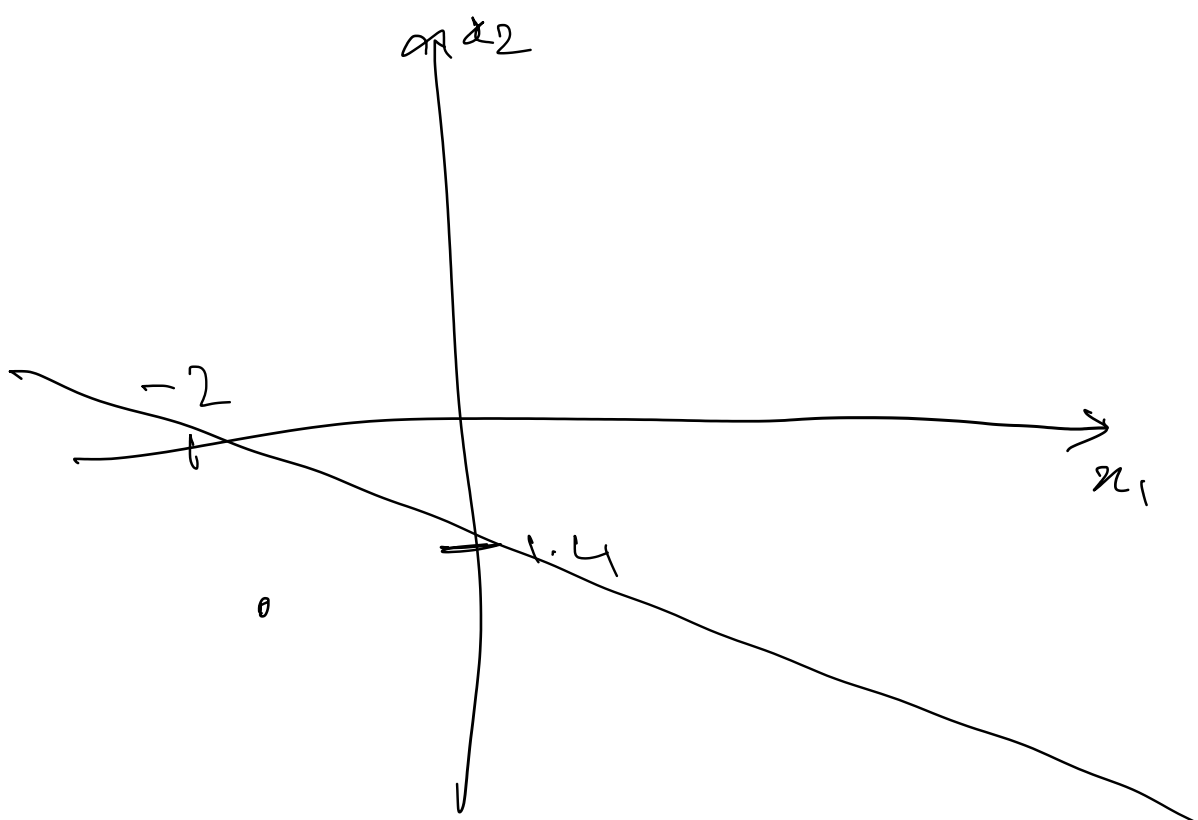
$$w_0 = 0$$

$$w_1 = -1$$
$$w_2 = 1$$

$$w_0 + w_1 x_1 + w_2 x_2 = z$$

$$\begin{pmatrix} x_1 & y_1 \\ -2, 0 \end{pmatrix} \quad (0, -1.4)$$

$$y - y_1 = \left(\frac{y_2 - y_1}{x_2 - x_1} \right) x - x_1 \quad \longrightarrow \text{ Formula for 2 point form of line}$$

$$x_2 =$$

$$x_2 - 0 = \left(\frac{-1.4 - 0}{0 - (-2)} \right)(x_1 + 2)$$

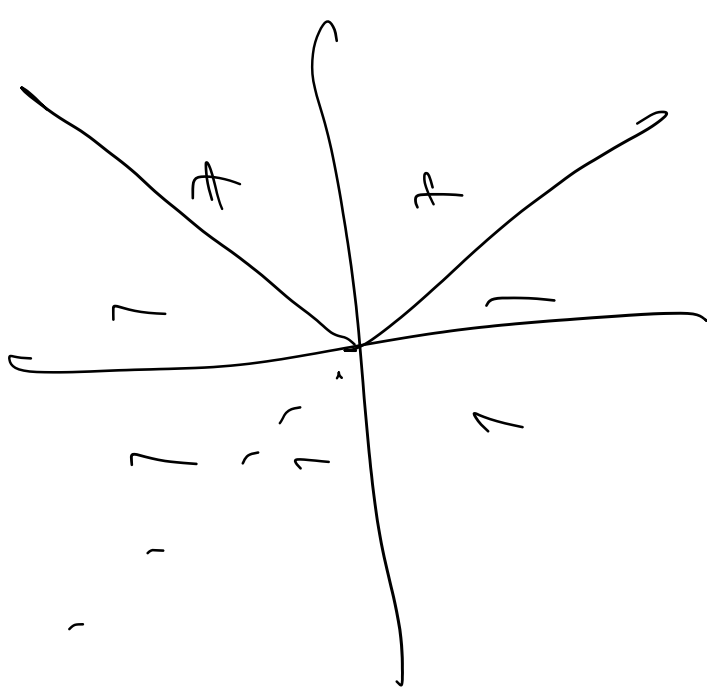$$x_2 = \left(\frac{-1.4}{2} \right)(x_1 + 2)$$

$$x_2 = \frac{-1.4 x_1 + (-1.4)}{2}$$

$$x_2 = \frac{-1.4}{2} x_1 - 1.4$$

$$x_2 + \frac{1.4}{2} x_1 + 1.4 = 0$$

$$w_0 = 1.4$$
$$w_1 = \frac{1.4}{2} \qquad w_2 = 1$$

→ With single layer
single node perceptron
we can only create
linear boundaries
Since the is non-linear boundary
its not feasible.