Exercise 5
Deep Learning

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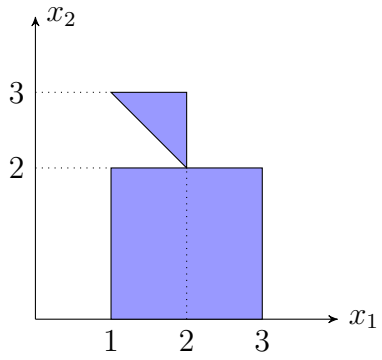
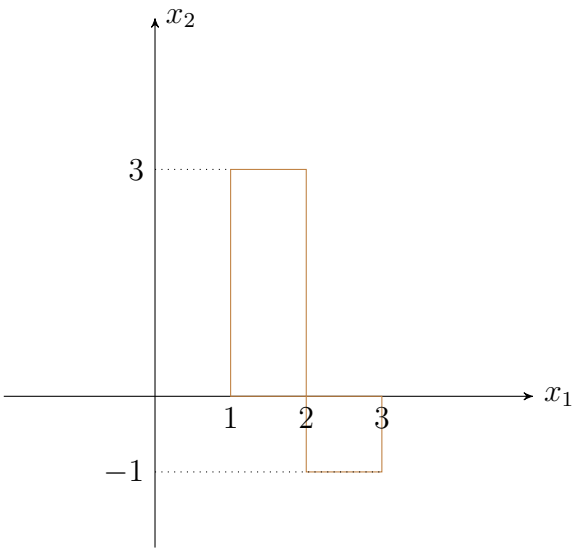
Deadline: 25-June-2021 23:00-IRST

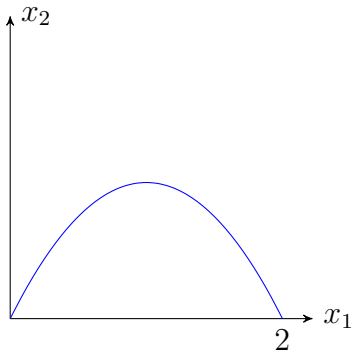
1. Design a Neural Network for $x \wedge (y \vee \overline{z})$. Is this network deep?
2. Write a multi-layer perceptron with just one hidden layer to compute the boolean term $x_1 \wedge (x_2 \vee \overline{x}_3 \vee x_4) \vee (\overline{x}_2 \vee x_3)$.
3. Write a multi-layer perceptron that inside the following shape is 1 and the outside is 0.



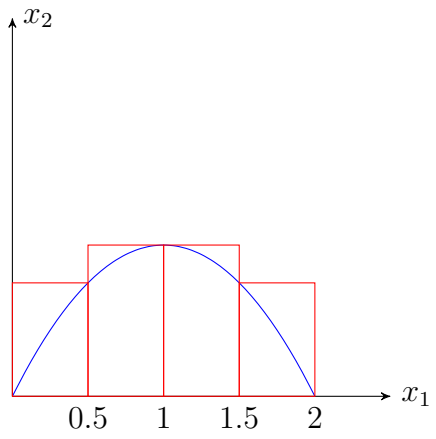
4. What is the multi layer perceptron for the following step function,



5. Write a multi-layer perceptron to model the function $f(x) = x(2-x)$ in the interval $[0, 2]$ with the step size $h = 0.5$.



Help:


x_2
x_1
0.5
1
1.5
2