

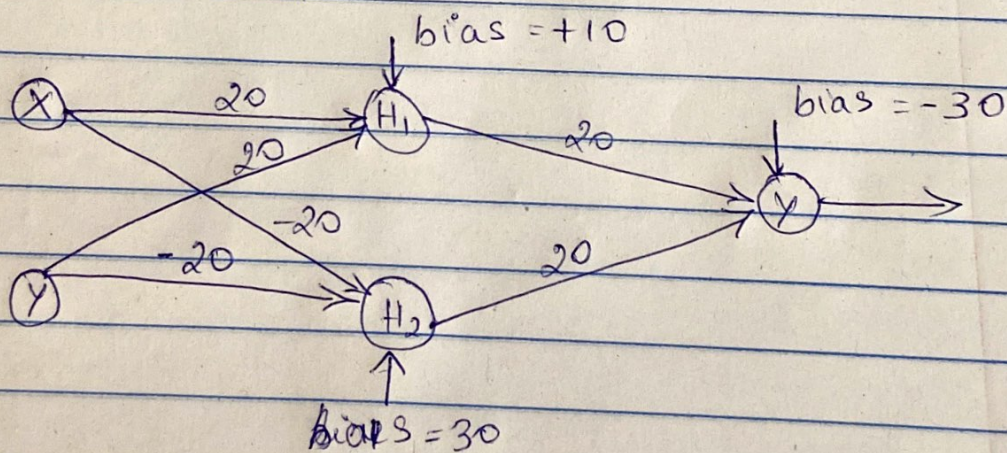
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B# - B00813750

Homework-3 :- CS436/580 L : Introduction to Machine Learning

- 1) Given :- Coordinates of the points - $(1, 1)$, $(1, -1)$, $(-1, 1)$ and $(-1, -1)$

0	x
x	0



Input layer

Hidden layer

Output layer

$$W_{XH1} = 20$$

$$W_{YH1} = 20$$

$$W_{H1Y} = 20$$

$$W_{H2Y} = 20$$

$$W_{XH2} = -20$$

$$W_{YH2} = -20$$

$$H_1 : \sigma(20x + 20y + 10)$$

$$H_2 : \sigma(-20x - 20y + 30)$$

$$Y : \sigma(20H_1 + 20H_2 - 30)$$

$$(-1, 1) :$$

$$H_1 = \sigma(-20 - 20 + 10) \approx 0$$

$$H_2 = \sigma(20 + 20 + 30) \approx 1$$

$$Y = \sigma(0 + 20 - 30) \approx 0$$

$$(1, 1) :$$

$$H_1 = \sigma(20 + 20 + 10) \approx 1$$

$$H_2 = \sigma(-20 - 20 + 30) \approx 0$$

$$Y = \sigma(20 + 0 + 30) \approx 1$$

$$(-1, -1) :$$

$$H_1 = \sigma(-20 + 20 + 10) \approx 1$$

$$H_2 = \sigma(20 - 20 + 30) \approx 1$$

$$Y = \sigma(20 + 20 - 30) \approx 1$$

$$(1, -1) :$$

$$H_1 = \sigma(20 - 20 + 10) \approx 1$$

$$H_2 = \sigma(-20 + 20 + 30) \approx 1$$

$$Y = \sigma(20 + 20 - 30) \approx 1$$

