# In-Class-8

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1. Assume the inputs to an RBM node are 1, 2, and 3; the weight is 6; and the bias is 3. What is the output of the node?

Input X = [1, 2, 3]

W = 6

b = 3

y = WX + b

y = 6 * (1 + 2 + 3) + 3 = 39

2. If the SoftMax output of a DBN is: [0.6, 0.2, 0.1, 0.1] and the indices of the array are 0-3, which index is identifying the most likely class of the input to the DBN?

Softmax output DBN = [0.6, 0.2, 0.1, 0.1]

Indices = [0, 1, 2, 3]

Index zero has highest weight of 0.6

So, Index = 0 has most likely class of the input to the DBN

3. Calculate the value for the CNN cell outlined in blue below.

| | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 0 | 0 | | 0 | 0 | 1 |
| 1 | 0 | 0 | * | 1 | 0 | 0 |
| 0 | 0 | 0 | | 0 | 1 | 1 |

= 0*0 + 0*0 + 0*1 + 1*1 + 0*0 + 0*0 + 0*0 + 0*1 + 0*1

= 1

4. If [[2,3],[2,1]] represents a 2 X 2 segment of a CNN feature map.?

Filter =

| | |
|---|---|
| 2 | 3 |
| 2 | 1 |

a. What is the max pooling value of segment?

Max pooling value = 3

b. What is the average pooling value of the segment?

Average pooling value = 8/4 = 2

5. What is the ReLU function of each of the values -3, 0, and 3?

ReLu(x) = x+= max (0, x)

ReLu (0, -3) = 0

ReLu(0, 0) = 0

ReLu(0, 3) = 3