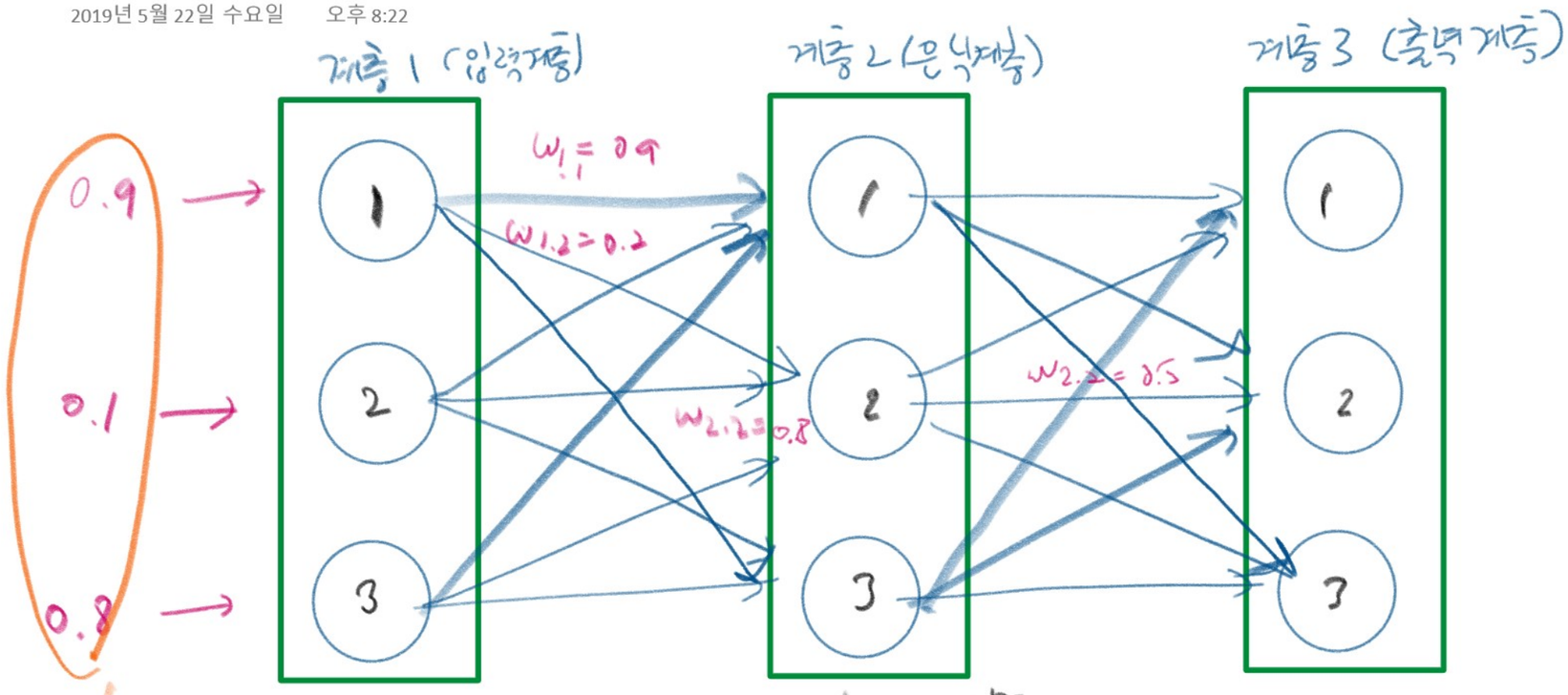
CH9_행렬-신경망 ~ 13

2019년 5월 22일 수요일 오후 8:22



$$I = \begin{pmatrix} 0.9 \\ 0.1 \\ 0.8 \end{pmatrix}$$

입력행렬

$X = W \cdot I$

가중치 행렬

$W_{input\_hidden} = \begin{pmatrix} w_{1.1} & w_{2.1} & w_{3.1} \\ w_{1.2} & w_{2.2} & w_{3.2} \\ w_{1.3} & w_{2.3} & w_{3.3} \end{pmatrix}$

[ ] × [ ] : 3×3 prod.?

↓

$\sim R^{input}_{hidden}$?

(X) X_{hidden}

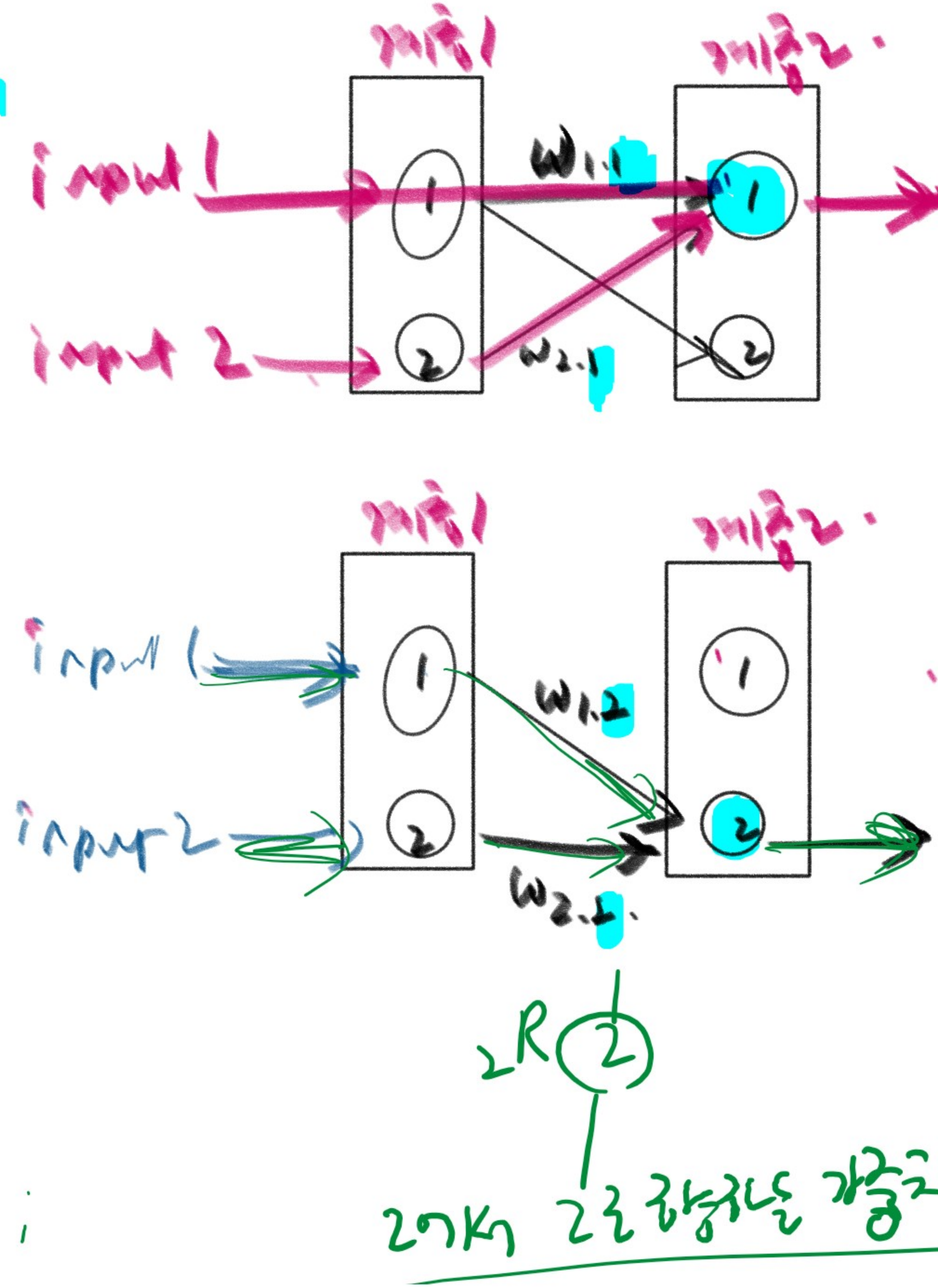
=

전 계층.

각 노드에서 시작해서,

마지막 계층

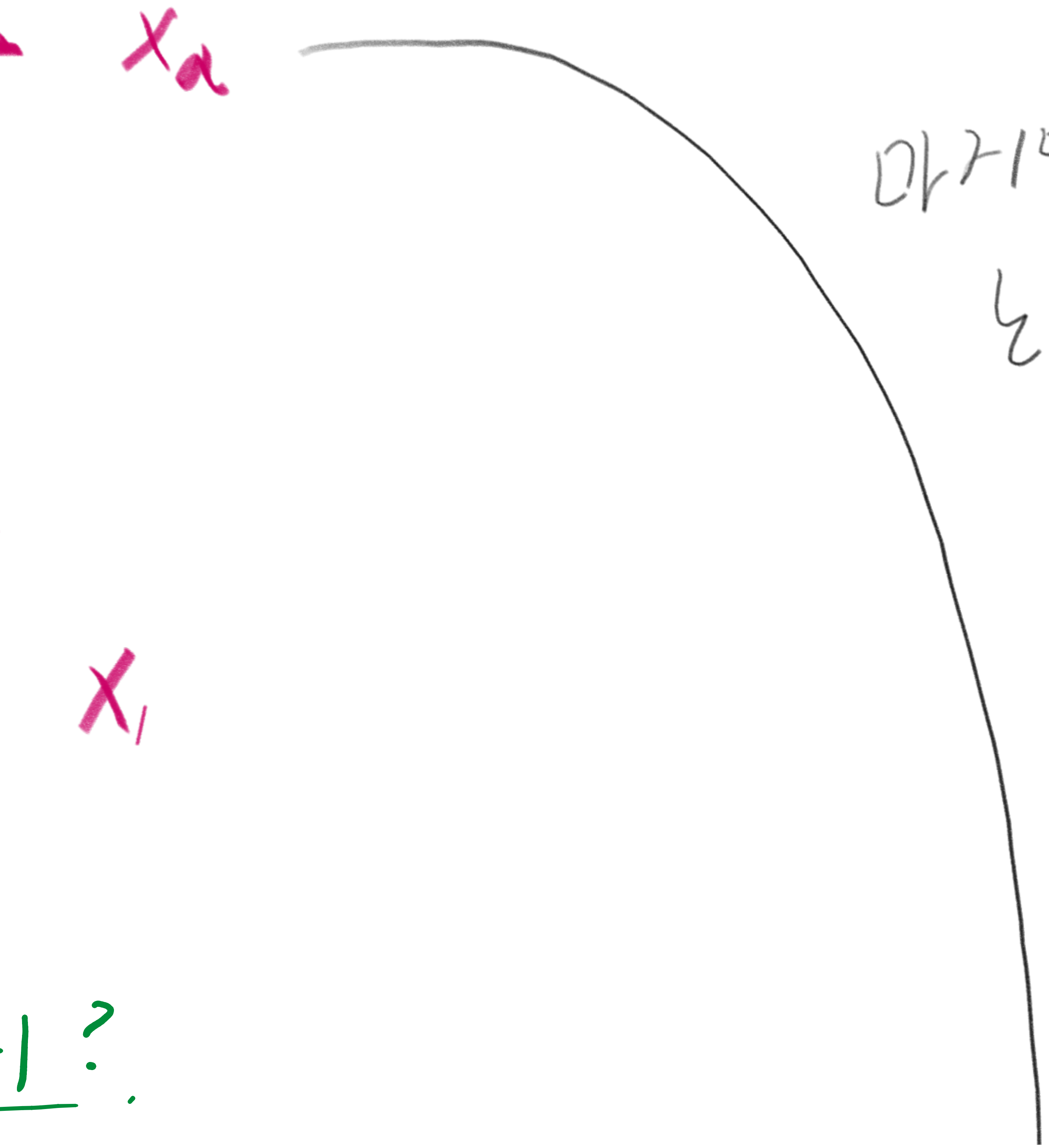
1로 쏠리는 가중치..?



W hidden_output.

=

3x3. ( )



마지막 계층
노드1에
들어가는
입력값?

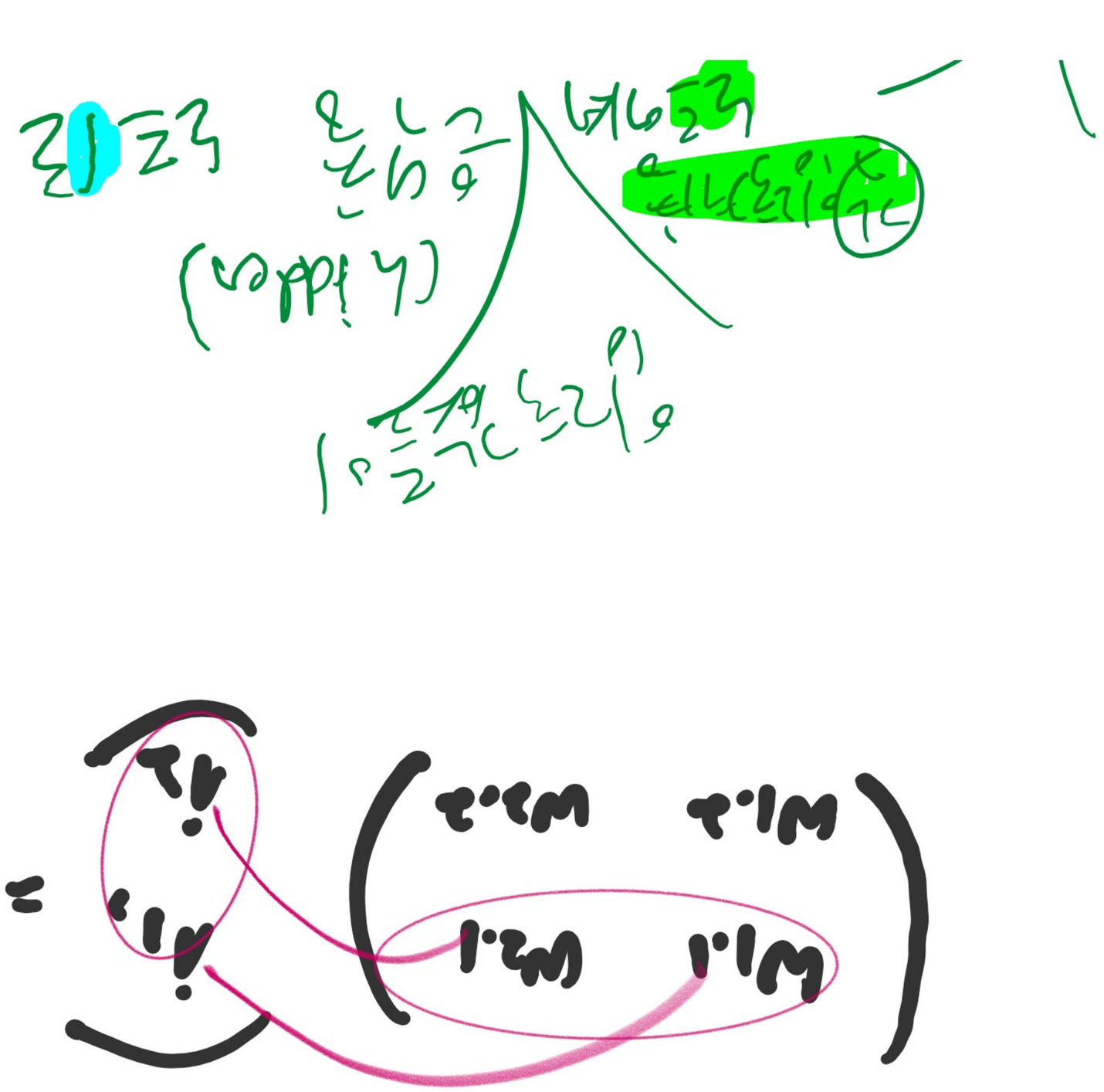
= $W_{input\_hidden} \cdot I$

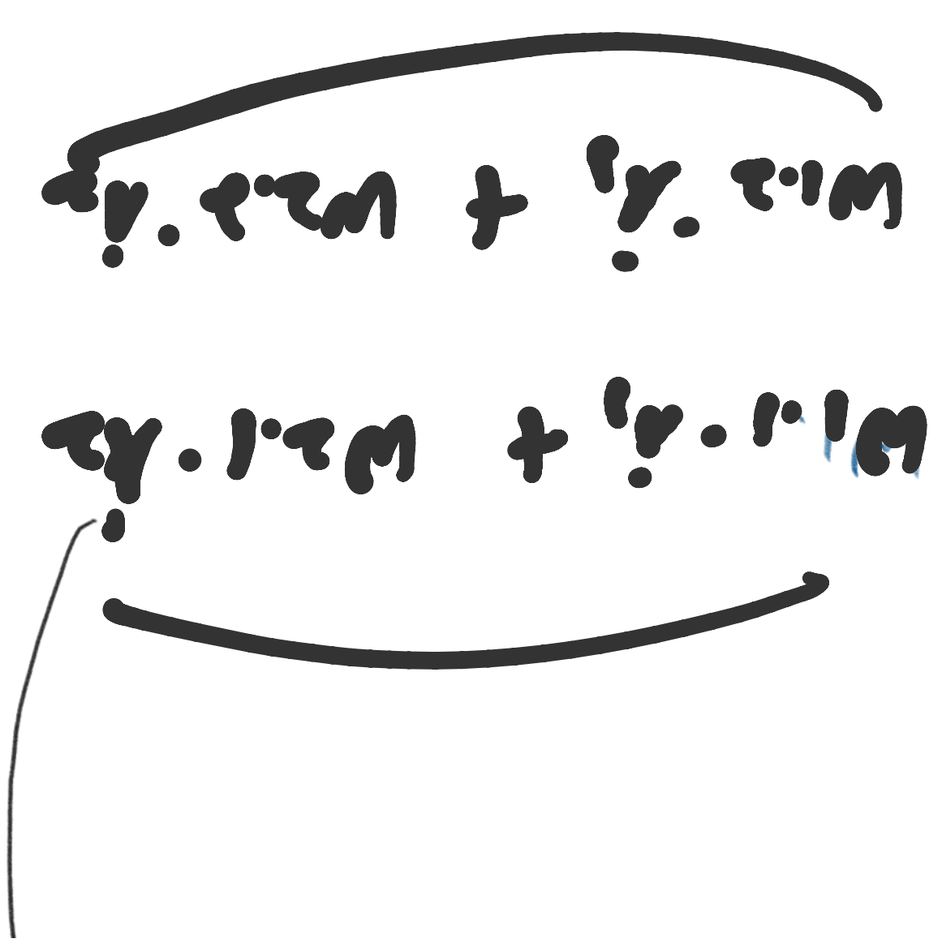
$$\begin{pmatrix} 0.9 & 0.3 & 0.4 \\ 0.2 & 0.8 & 0.2 \\ 0.1 & 0.5 & 0.6 \end{pmatrix} \cdot \begin{pmatrix} 0.9 \\ 0.1 \\ 0.8 \end{pmatrix} = \begin{pmatrix} 0.9 \cdot 0.9 + 0.3 \cdot 0.1 + 0.4 \\ 0.2 \cdot 0.9 + 0.8 \cdot 0.1 + 0.2 \\ 0.1 \cdot 0.9 + 0.5 \cdot 0.1 + 0.6 \end{pmatrix}$$

3 × 3 3 × 1 최종 행렬

$$\begin{pmatrix} w_{11} & w_{21} & w_{31} \\ w_{12} & w_{22} & w_{32} \\ w_{13} & w_{23} & w_{33} \end{pmatrix}$$

input





$$\begin{pmatrix} w_{13} & w_{23} & w_{33} \end{pmatrix}$$

input

$$\begin{pmatrix} w_{11} & w_{21} & w_{31} \\ w_{12} & w_{22} & w_{32} \\ w_{13} & w_{23} & w_{33} \end{pmatrix} \cdot \begin{pmatrix} i_1 \\ i_2 \\ i_3 \end{pmatrix} = \begin{pmatrix} w_{11} \cdot i_1 + \\ w_{12} \cdot i_1 \\ \\ w_{13} \; i_1 + \end{pmatrix}$$

$$= \quad \vee$$

$+ w_{21} \cdot i_2 + w_{31} \cdot i_3$

$+ w_{22} \cdot i_2 \quad w_{32} + i_3$

$+ w_{23} \cdot i_2 \quad w_{33} + i_3$

가중치행렬과 곱셈

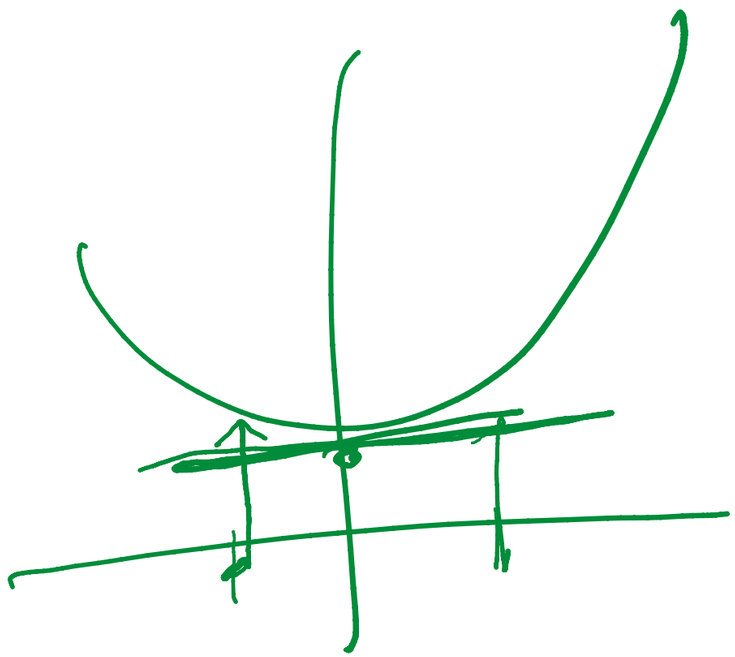
=

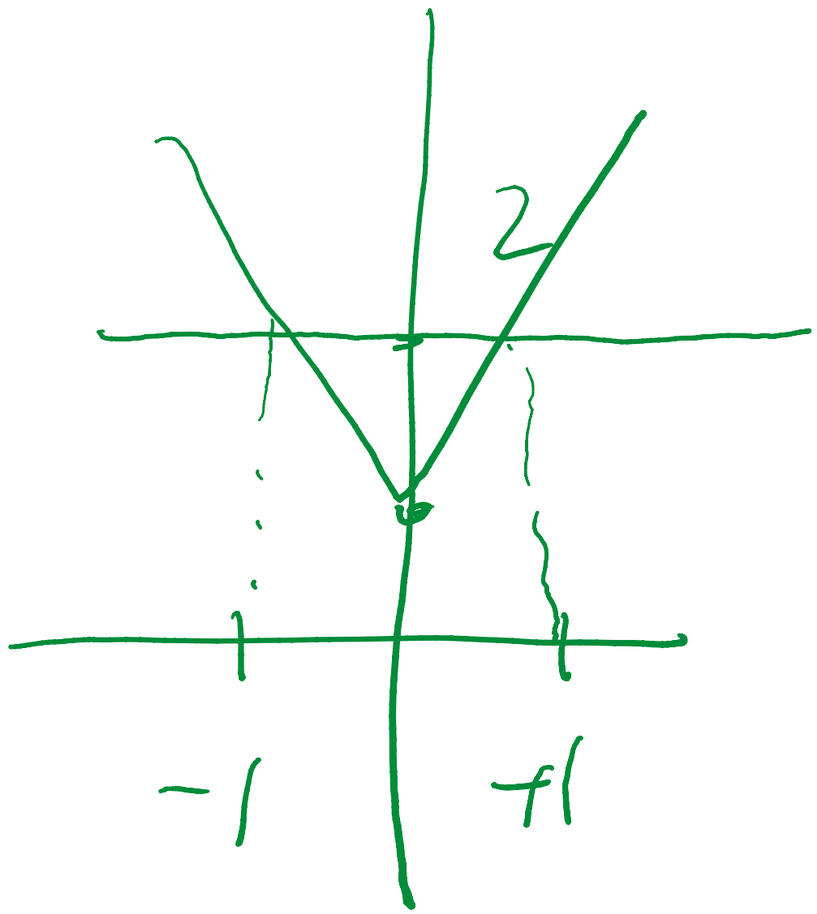
은닉층 노드 2 =

=

은닉층 노드 3 =

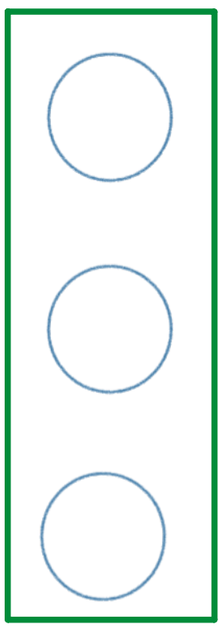
$\begin{pmatrix} 1.16 \end{pmatrix}$



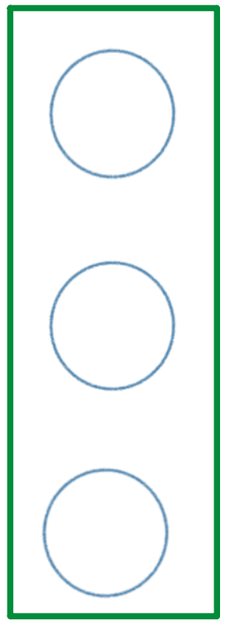

2
-1
1

=

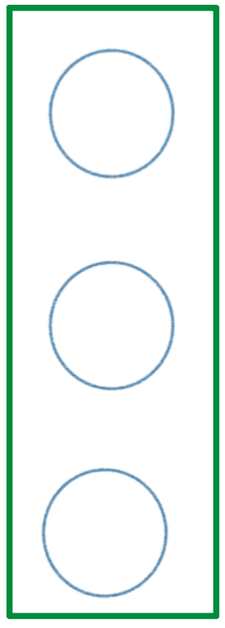
입력계층



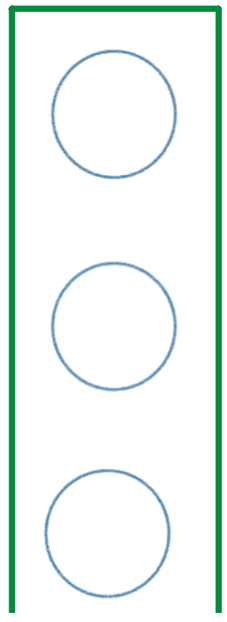
은닉계층



출력계층

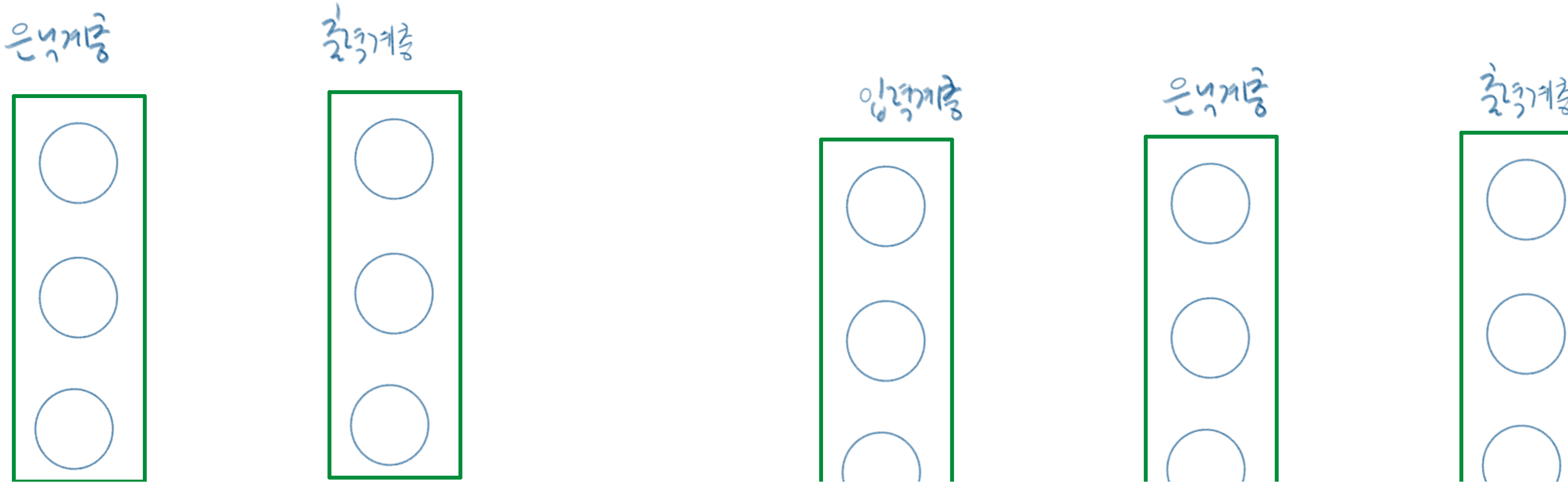


입력계층



...dden = $\begin{pmatrix} 0.42 \\ 0.62 \end{pmatrix}$, O hidde...

모든 사슬가 선택해야함. 한번씩. 같은 목적. 입출...



$$= \text{Sigmoid}(X \text{ hidden})$$

$$= \begin{pmatrix} 0.761 \\ 0.603 \\ 0,650 \end{pmatrix}$$