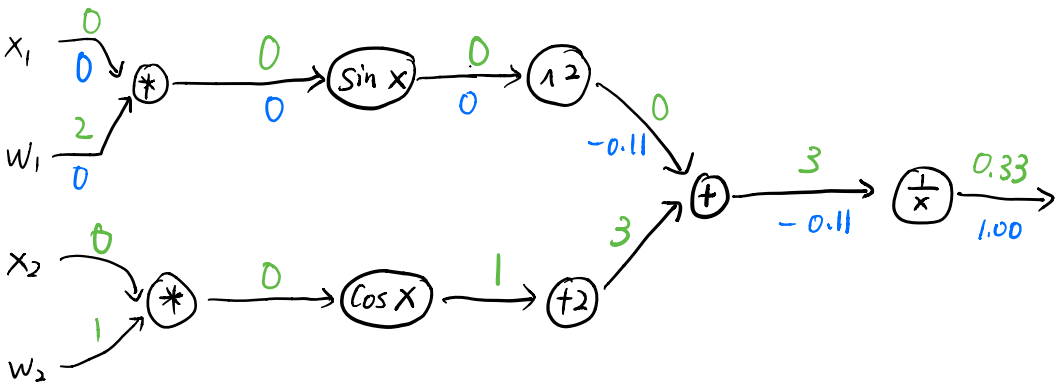



$f(x) = \frac{1}{x} \Rightarrow \frac{df}{dx} = -\frac{1}{x^2}$

$f_1(x) = x + c \Rightarrow \frac{df_1}{dx} = 1$

$f_2(x) = x^2 \Rightarrow \frac{df_2}{dx} = 2x$

$f_3(x) = \sin x \Rightarrow \frac{df_3}{dx} = \cos x$

$f_4(x) = cx \Rightarrow \frac{df_4}{dx} = c$

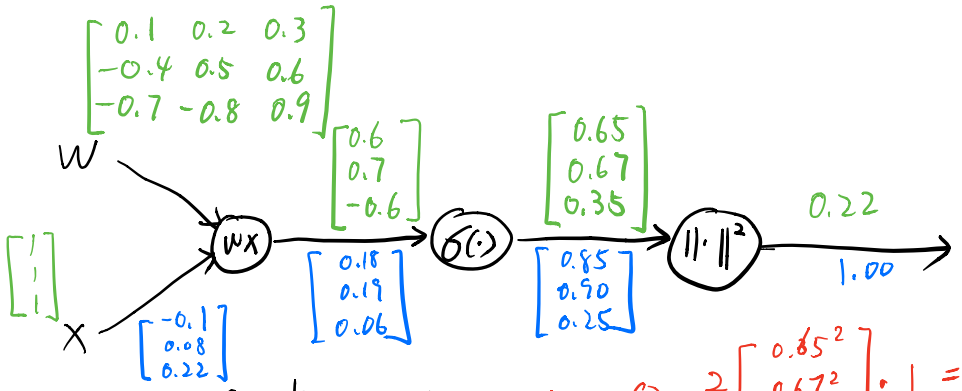
① $(1.00)\left(-\frac{1}{3^2}\right) = -0.11$

② $(-0.11)(1) = -0.11$

③ $(-0.11)(2 * 0) = 0$

④ $(0)(\cos 0) = 0$

⑤ $\begin{cases} (0)(0) = 0 \\ (0)(2) = 0 \end{cases}$




$f_1(x) = \|x\|^2 \Rightarrow \frac{df_1}{dx} = 2\|x\|$ $\Rightarrow$ ① $2\begin{bmatrix} 0.85^2 \\ 0.67^2 \\ 0.35^2 \end{bmatrix} \cdot 1 = \begin{bmatrix} 0.85 \\ 0.90 \\ 0.25 \end{bmatrix}$

$f_2(x) = \sigma(x) \Rightarrow \frac{df_2}{dx} = \sigma(x)(1 - \sigma(x))$ ② $\begin{bmatrix} 0.70 \cdot 0.3 \cdot 0.85 \\ 0.71 \cdot 0.29 \cdot 0.9 \\ 0.56 \cdot 0.44 \cdot 0.25 \end{bmatrix} = \begin{bmatrix} 0.18 \\ 0.19 \\ 0.06 \end{bmatrix}$

$f_3(x) = Wx \Rightarrow \frac{df_3}{dx} = W^T$

$\begin{bmatrix} 0.1 & -0.4 & -0.7 \\ 0.2 & 0.5 & -0.8 \\ 0.3 & 0.6 & 0.7 \end{bmatrix} \begin{bmatrix} 0.18 \\ 0.19 \\ 0.06 \end{bmatrix} = \begin{bmatrix} -0.1 \\ 0.08 \\ 0.22 \end{bmatrix}$