2. Find the equation $f(x) = ax + b$ of the least square line for the points $(1, 0)$, $(-1, 2)$, $(2, 1)$.

$$\begin{bmatrix} 1 & 0 \\ -1 & 2 \\ 2 & 1 \end{bmatrix}$$

$W_1 = \langle v_1 \rangle$

$W_2 = v_2 - \frac{\langle w_1, v_2 \rangle}{\langle w_1, w_1 \rangle} w_1$

$W_1 = \langle v_1^1 \rangle$

$W_2 = \langle v_2^2 \rangle - \frac{\langle w_1, v_2 \rangle}{\langle w_1, w_1 \rangle} w_1$

$W_1 = \sqrt{1^2 + 1^2 + 2^2} = \sqrt{6}$

I'm sorry, I don't know how to do this

$$A^T \cdot A x = A^T b$$

$$A = \begin{bmatrix} 1 & 0 \\ -1 & 2 \\ 2 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & 1 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 \\ -1 & 2 \\ 2 & 1 \end{bmatrix} = \begin{bmatrix} 6 & 0 \\ 0 & 5 \end{bmatrix}$$

$$A^T = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & 1 \end{bmatrix}$$

$\det A^T A = 6 \cdot 5 = 30$

$\det A^T = (-1 \cdot 1 - 2 \cdot 2) + (1 \cdot 1 - 2 \cdot 0) + (1 \cdot 2 - 0) = -2$

$$f(x) = 30x - 2$$

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0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20