PROBLEM 5

#1. $b =$

#2 $A^T A\hat{x} = A^T b$

$$\begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 \\ & & & & & \end{bmatrix} A\hat{x} = \begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 \\ & & & & & \end{bmatrix} b$$

b: m terms

first row = $\text{sum}(A\hat{x})$ → m terms

first row = $\text{sum}(b)$

$$\text{avg} = \frac{\text{sum}(A\hat{x})}{m} = \frac{\text{sum}(b)}{m}$$

s/c first rows are equal

#3 $$\text{std}(b) = \sqrt{\frac{\|b - \text{avg}(b)\|^2}{m}}$$

I don't know how to do #1, but assuming that method exists,

1) calculate b from last colum of R

2) calculate $A\hat{x}$ from last colum $R \rightarrow (A\hat{x})^{\text{avg}} = (b)^{\text{avg}}$