The Last Homework Item I'll Turn In During College, Section 6.5: 17, 18

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Freedom

17. A)

True. If mxn and B is in R^M, a least squares solution of $Ax = b$ is an $\hat{x}$ in R^n.

17. B)

True. The projection gives us the best approximation

17. C)

False. The inequality is facing the wrong way.

17. D)

True. This is how we can find the least squares solutions

17. E)

True. Then A^TA is invertible so we can solve $A^TAx = A^Tb$ for x by taking the inverse.

18. A)

True. See the paragraph after the least squares solution.

18. B)

False. If $\hat{x}$ is the least squares solution then $A\hat{x}$ is the point in the column space closest to b.

18. C)

True. See the discussion following equation 1

18. D)

False. The formula applies only when the columns of A are linearly independent.

18. E)

False. See example 4.

18. F)

False. Eq. (7) numerical note.