Part A (12 points): Record answers on the bubble sheet in your answer booklet.

Answers or work indicated anywhere else on your exam will not be eligible for marking.
Fill in the rectangle corresponding to your answer fully, using a dark pen or pencil.

1. [1 pt.] True or False: The least-squares solution of $A\mathbf{x} = \mathbf{b}$ is the vector in the column space of A closest to $\mathbf{b}$

(A) True (B) False (C) Not enough information to determine

2. [1 pt.] True or False: If the equation $A\vec{x} = \vec{b}$ has a unique least squares solution, then the columns of A are linearly independent.

(A) True (B) False (C) Not enough information to determine

3. [1 pt.] True or False: Let A be an $n \times n$ orthogonal matrix. Then A is orthogonally