The foundations blah blah blah

$$|f(y) - f(x)| < \epsilon.$$

Question 1:
a)
b)

1. Prove that $rank(A) \leq m$

   Since the definition of $rank(A)$ is the number of nonzero rows, and $A \in \mathbb{R}^{m \times m}$ then the maximum number of nonzero rows that can exist is all of them, or $m$. ■

2. Prove that if $rank(A) = m$, then $Ax = b$ has a solution for every $b$.

3. Prove that i $rank(A) < m$, then there exists a $b$ such that $Ax = b$ has no solution.