沒有星號題的答案見課本後面

Section 2-2

課本 problem 3, 7, 9, 11, 12*, 14*, 15

12.

Let A be an $n \times n$ matrix. Then

$$null(A) = n - rank(A) = n - rank(A^T) = null(A^T).$$

14.

Let A be $m \times n$ matrix. Every vector in the column space of AC is of the form $\vec{v} = (AC)\vec{x}$ for some $\vec{x} \in \mathbb{R}^n$. For every $\vec{x}$, $(C\vec{x}) \in \mathbb{R}^n$. Then $\vec{v} = A(C\vec{x})$ which is the vector in the column space of A. Thus $colspace(AC) \subseteq colspace(A)$.

Section 2-3

課本 problem 1, 3, 11, 17