沒有星號題的答案見課本後面

Section 3-4

課本 proble: 17, 21, 23, 27, 34*, 43*, 51

34 T F T T F T F F F T

43

$$\begin{aligned}(T_1+T_2)(\vec{u}+\vec{v}) &= T_1(\vec{u}+\vec{v})+T_2(\vec{u}+\vec{v})\\ &= T_1(\vec{u})+T_1(\vec{v})+T_2(\vec{u})+T_2(\vec{v})\\ &= T_1(\vec{u})+T_2(\vec{u})+T_1(\vec{v})+T_2(\vec{v})\\ &= (T_1+T_2)(\vec{u})+(T_1+T_2)(\vec{v})\end{aligned}$$

Similarly,

$$\begin{aligned}(T_1+T_2)(r\vec{v}) &= T_1(r\vec{v})+T_2(r\vec{v})\\ &= rT_1(\vec{v})+rT_2(\vec{v})\\ &= r(T_1(\vec{v})+T_2(\vec{v}))\\ &= r(T_1+T_2)(\vec{v})\end{aligned}$$

Thus T_1+T_2 is a linear transformation.

Section 4-1

課本 proble: 5, 7, 19, 23, 29, 51