MATH 2310 HOMEWORK 4

Due Friday 23 October.

(1) Section 4.1, p.188, Exercise 19.

(2) Section 4.2, p.196, Exercise 1.

(3) Section 4.3, p.206, Exercise 5(a,d).

(4) Section 4.3, p.206, Exercise 14.

(5) Section 4.4, p.216, Exercise 11.

(6) Section 4.4, p.216, Exercise 13.

(7) Section 4.5, p.226, Exercise 2.

(8) Let $\mathbf{x}$ be some fixed vector in $\mathbb{R}^3$. Define $\oplus$ on $\mathbb{R}^3$ by

$$\mathbf{u} \oplus \mathbf{v} = \mathbf{u} + \mathbf{v} - \mathbf{x}$$

and define $\odot$ by

$$c \odot \mathbf{u} = c\mathbf{u} + (1 - c)\mathbf{x}$$

where c is a real number.

Show that $\mathbb{R}^3$ equipped with $\oplus$ and $\odot$ is a vector space.