

Homework #8

Raymond Deneckere

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1. Sundaram, #6, p.198.
2. Sundaram, #11 p.199.
3. Suppose that $f : \mathbb{R}^n \rightarrow \mathbb{R}$. Prove that $f(\cdot)$ is concave if and only if for any $x \in \mathbb{R}$ and $y \in \mathbb{R}$, the function $g : \mathbb{R} \rightarrow \mathbb{R}$

$$g(t) = f(x + t(y - x))$$

is concave in t . Interpret this result graphically.

4. Sundaram, #15, p. 200.
5. Sundaram, #19, p. 200.