Homework 3

The following are due on Friday, September 21:

§2.3 #$7, 12, 15$;

§2.4 #$17, 23, 24$;

§2.5 #$5, 19, 20$, and the chain rule problem below;

§2.6 #$5, 6, 25$.

Chain Rule Problem: We call $f : \mathbb{R}^2 \to \mathbb{R}$ *homogeneous of degree p* if[1]

$$f(\lambda x, \lambda y) = \lambda^p f(x, y).$$

Find a formula for such a function f in terms of its derivatives by differentiating both sides of the above with respect to λ and letting $\lambda = 1$.

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[1]More generally, we can replace 2 with n.