MTH 627 (Prof. M. Peszynska) Problem set 1. **FirstName LastName**
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Include proper citations including online resources as in [**?**, Chap.I, Theorem 1.1].
For other results, state these.

Problem 1. Solve a modification of I.2.2: consider

$$p(x) = p_1(x_1) + 5p_2(x_2), q(x) = \max(10p_1(x_1), p_2(x_2)) \tag{1}$$

defined for $V = V_1 \times V_2 \ni x = (x_1, x_2)$. Are $p(x), q(x)$ seminorms on V. If yes, which is stronger? (Provide appropriate scaling constants). Under what assumptions are they norms?

Solution:

Problem 2. Solve I.4.3.

Solution:

References

[1] Ralph Showalter, *Hilbert Space Methods in Partial Differentia;l Equations*, Dover, (2010)
[2] CTAN archive of the LaTeX package `listings` `https://ctan.org/pkg/listings`