MATH 173 Problem Set 9

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Problem 1. ◁

Solution.

Problem 2. ◁

Solution.

1. We need $\int_0^1 |x^\alpha|^2 = \int_0^1 x^{2\alpha}$ to converge. This converges for $\alpha > -1/2$ and diverges for $\alpha \leq -1/2$, so $\phi_\alpha \in L^2((0,1))$ for $\alpha > -1/2$. □

Problem 3. ◁

Solution.

Problem 4. ◁

Solution.

Problem 5. ◁

Solution.

Problem 6. ◁

Solution.

Problem 7. ◁

Solution.