Homework 04

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Exercises

1

For $\min(f, g)$ we want to show $\int \min(f, g)^+$ and $\int \min(f, g)^-$ are finite.

For $\varphi \leq \min(f, g)^+ = min(f^+, g^+) \leq f^+$, it follows $\varphi \leq \int f^+$ upperbounded. Hence $\sup\{\varphi \mid \varphi \leq \min(f, g)^+\} = \int \min(f, g)^+$ is finite.

For $\varphi \leq min(f, g)^- = \max(f^-, g^-)$, observe $\int \max(f^-, g^-)$ is finite as both $\int f^-$ and $\int g^-$ are finite. It follows $\varphi \leq \int \max(f^-, g^-)$ upperbounded. Hence $\{\varphi \mid \varphi \leq \min(f, g)^-\}$ is finite.

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