Quiz 9, Advanced Calculus I, Yung Fu Fang

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Riemann-Stieltjes integral of bounded function f with respect to α over the interval $[a,b]$

Let α be a [ ] function on $[a,b]$.

Let $\mathcal{P} =$ [ ] be a partition of $[a,b]$.

$\Delta\alpha_j =$ [ ]

Upper Sum $U(\mathcal{P}, f, \alpha) =$ [ ], where $M_j =$ [ ].

Lower Sum $\mathcal{L}(\mathcal{P}, f, \alpha) =$ [ ], where $m_j =$ [ ].

Upper Integral $\overline{\int}_a^b f(x)d\alpha =$ [ ].

Lower Integral $\underline{\int}_a^b f(x)d\alpha =$ [ ].

f is called Riemann-Stieltjes integrable if [ ] $=$ [ ], which is called

the Riemann-Stieltjes integral of f with respect to α over $[a,b]$ and denoted by [ ].

The partition $\mathcal{P}^*$ is a refinement of the partition $\mathcal{P}_2$ if [ ].

The partition $\mathcal{P}^*$ is a common refinement of the partitions $\mathcal{P}_1$ and $\mathcal{P}_2$ if [ ].

If $\mathcal{P}^*$ is a refinement of $\mathcal{P}$, then the relations for Upper Sums, Lower Sums, Upper Integral, and Lower

Integral of f are

[ ] $\leq$ [ ] $\leq$ [ ] $\leq$ [ ] $\leq$ [ ] $\leq$ [ ].

If f is Riemann-Stieltjes integrable with respect to α over $[a,b]$, then for every [ ], there is a

partition $\mathcal{P}$ such that [ ].