

0D integral

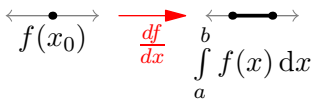
1D integral

2D integral

3D integral

$f: \mathbb{R}^1 \rightarrow \mathbb{R}$

Eval f at point 1D integral



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$\mathbf{F}: \mathbb{R}^2 \rightarrow \mathbb{R}^2$

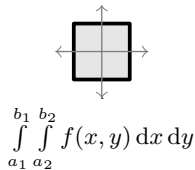
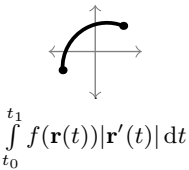
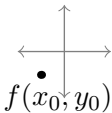
$\int_{t_0}^{t_1} \mathbf{F}(\mathbf{r}(t)) \cdot \mathbf{r}'(t) dt$ Work



Eval f at point Line integral

Double/area integral

$f: \mathbb{R}^2 \rightarrow \mathbb{R}$

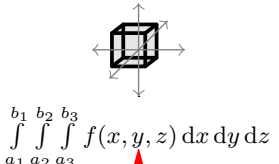
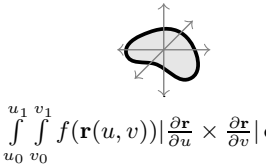
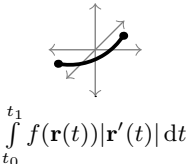
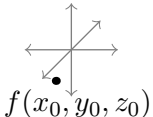


Eval f at point Line integral

Surface integral

Triple/volume integral

$f: \mathbb{R}^3 \rightarrow \mathbb{R}$



$\mathbf{F}: \mathbb{R}^3 \rightarrow \mathbb{R}^3$

$\int_{t_0}^{t_1} \mathbf{F}(\mathbf{r}(t)) \cdot \mathbf{r}'(t) dt$ $\nabla \times \mathbf{F}$ (curl) $\int_{u_0}^{u_1} \int_{v_0}^{v_1} \mathbf{F}(\mathbf{r}(u, v)) \cdot \left(\frac{\partial \mathbf{r}}{\partial u} \times \frac{\partial \mathbf{r}}{\partial v} \right) du dv$