Introduction

Line integrals:

• work;
• potential energy;
• velocity potential
• ...

Path independence:

\[ \int_A^B \vec{F} \cdot d\vec{r} \]

is independent of the path between A and B when curl\( \vec{F} \equiv \text{rot}\( \vec{F} \equiv \nabla \times \vec{F} = 0. \]