

Work integrals

1. Let C be the path from $(0,0)$ to $(5,5)$ consisting of the straight line from $(0,0)$ to $(5\sqrt{2}, 0)$ followed by the arc from $(5\sqrt{2}, 0)$ to $(5,5)$ that is part of the circle of radius $5\sqrt{2}$ centered at the origin.

Compute $\int_C \mathbf{F} \cdot d\mathbf{r}$ for the following vector fields \mathbf{F}

a) $\mathbf{F} = x \mathbf{i} + y \mathbf{j}$; b) $\mathbf{F} = x \mathbf{j}$.

(Remember to work smart and exploit geometry where possible.)

MIT OpenCourseWare
<http://ocw.mit.edu>

18.02SC Multivariable Calculus
Fall 2010

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.