



## Item Navigation

# Gradient Theorem

Let  $\phi(\mathbf{r}) = x^2y + xy^2 + z$ .

(a) Compute  $\nabla\phi$ .

(b) Compute  $\int_C \nabla\phi \cdot d\mathbf{r}$  from  $(0, 0, 0)$  to  $(1, 1, 1)$  using the gradient theorem.

(c) Compute  $\int_C \nabla\phi \cdot d\mathbf{r}$  along the lines segments  $(0, 0, 0)$  to  $(1, 0, 0)$  to  $(1, 1, 0)$  to  $(1, 1, 1)$ .

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