Independence of Path.

Spring 2016

Attendance Quizzes

April 20, 2016

Show that the vector field $F = <y^2, 2xy - e^{5z}, -5ye^{5z}>$ is conservative by finding a function f such that $F = \nabla(f)$.

Answer: $f = xy^2 - ye^{5z}$.

Use your calculation to find the work done by the force field F on a particle moving from $(0, 1, 1)$ to $(1, 3, 0)$.

Answer:

$$f(1, 3, 0) - f(0, 1, 1) = (1(9) - 3(1)) - (0 - (1)e^5) = 6 + e^5.$$