In-Class Quiz 8: Surface integrals (§14.6)

Directions: This quiz is due at the end of lecture.

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1. Recall, the formula for a line integral over a scalar function is given by

$$\int_C f \, ds = \int_a^b f(x(t), y(t), z(t)) |\mathbf{r}'(t)| \, dt.$$

If f is a function on a smooth surface S parametrized by $\mathbf{r}(u, v)$ and the derivatives $\mathbf{r}_u$ and $\mathbf{r}_v$ are continuous, then the formula for the surface integral is given by

$$\iint_S f(x, y, z) \, dS =$$

2. Consider the surface pictured below. Why do we not integrate functions on this surface in this course?