

§ 17.8 STOKES' THEOREM

C will be a 3D curve enclosing a 3D surface S



$$F = F(x, y, z) = P(x, y, z)\vec{i} + Q(x, y, z)\vec{j} + R(x, y, z)\vec{k}$$

STOKES THEOREM

$$\oint_C F \cdot dr = \iint_S \text{curl } F \cdot ds$$

Input: vector field (F)

Output: vector field (curl F)

$$\text{curl } F = \begin{bmatrix} \vec{i} & \vec{j} & \vec{k} \\ \frac{\partial}{\partial x} & \frac{\partial}{\partial y} & \frac{\partial}{\partial z} \\ P & Q & R \end{bmatrix}$$