Suppose \( \mathbf{F} = \langle \cos(e^{x^2}) - y, e^y + x, \sin(z^3) \rangle \) and \( S \) is the surface shown. Compute

\[
\iint_S \text{curl}(\mathbf{F}) \, dS = \ldots
\]

A \(-2\pi\)
B \(0\)
\(\textbf{C} \ 2\pi\)
D I got something different.
E I don’t know what to do.
Let \( \mathbf{F} = \langle e^x \sin(z) + y + 4yz, -x, e^x \cos(z) + 2xy \rangle \). Compute

\[
\text{curl}(\mathbf{F}) = \ldots
\]

A \( \langle xy \cos(z), e^x \cos(z), 2x + \sin(z) \rangle \)

B \( \langle 2x, 2y, -2 - 4z \rangle \)

C \( \langle xy \cos(z), 4y + e^x \sin(z), 2 - 4z \rangle \)

D \( \langle 2x, e^x \sin(z) + 2y, 2x + \sin(z) \rangle \)

E I got something different.
Let $\mathbf{F} = \langle e^x \sin(z) + y + 4yz, -x, e^x \cos(z) + 2xy \rangle$. Use Stokes Theorem and the portion of the cylinder $x^2 + y^2 = 1$ between $z = 1$ and $z = 0$ to compute the integral

$$\int_{C_1} \mathbf{F} \cdot d\mathbf{r}$$

where $C_1$ is the unit circle $x^2 + y^2 = 1$ in the plane $z = 1$, oriented counterclockwise.

A $-2\pi$
B 0
C $2\pi$
D I got something different.
E I don't know what to do.

Sign error — should be -6pi