

MATH 224B
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Quiz 5
15 minutes

Question 1

Let S be the piece of the surface $z = 2xy$ where $x^2 + y^2 \leq 4$.

1. Find the area of S .
2. Let $\mathbf{F}(x, y, z) = \langle y, x, e^{(x+y)^2 - z} \rangle$. Evaluate

$$\iint_S \mathbf{F} \cdot d\mathbf{S},$$

where S is given the *downward* orientation.

Hint: In (2) After obtaining the double integral it maybe helpful to evaluate using polar coordinates.

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