

## MATH 2E Prep: Double integrals

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### Facts to Know:

- If  $D = \{(x, y) \mid a \leq x \leq b, c \leq y \leq d\}$ , then  $\iint_D f(x, y) dS =$

Sketch of  $D$ :

- If  $D = \{(x, y) \mid a \leq x \leq b, g(x) \leq y \leq h(x)\}$ , then  $\iint_D f(x, y) dS =$

Sketch of  $D$ :

- If  $D = \{(x, y) \mid a \leq y \leq b, g(y) \leq x \leq h(y)\}$ , then  $\iint_D f(x, y) dS =$

Sketch of  $D$ :

### Examples:

1. Evaluate  $\iint_D x^2 \sin(y) dS$ , where  $D$  is the rectangle bounded by lines  $x = -1$ ,  $x = 1$ ,  $y = 0$  and  $y = \pi$ .

2. Evaluate the iterated integral  $\int_0^1 \int_x^1 e^{y^2} dy dx$ .