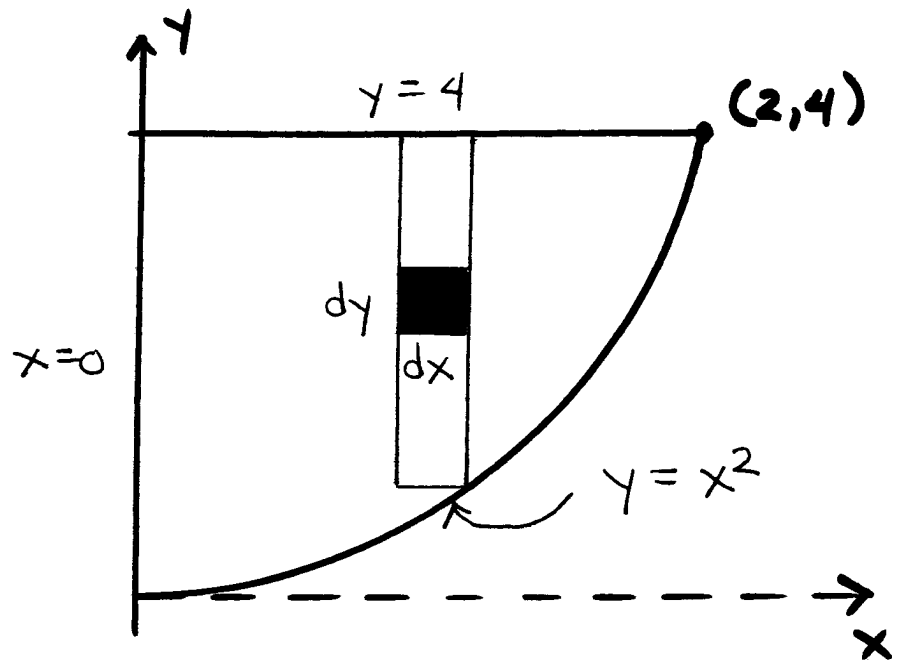


Note: Could we have done the previous problem using $dA = dy dx$?

Redraw region:



Outer rectangle: thickness = dx
LL: $x=0$ UL: $x=2$

Inner rectangle: thickness = dy
LL: $y=x^2$ UL: $y=4$

$$dA = dy dx$$

$$\begin{aligned} V &= \iint_R f(x,y) dA \\ &= \int_0^2 \int_{x^2}^4 4x e^{y^2} dy dx \\ &= \int_0^2 4x \underbrace{\int_{x^2}^4 e^{y^2} dy}_{\text{can't do}} dx \end{aligned}$$

can't do $\int e^{y^2} dy !!$

Answer: No.