

## Evaluate each integral

1. 
$$\int_0^1 \int_{x^2}^1 x^3 \sin(y^3) dy dx$$

2. 
$$\int_0^1 \int_{\sqrt{y}}^1 \sqrt{x^3 + 1} dx dy$$

3. 
$$\int_0^1 \int_0^1 \sin(e^x) dx dy + \int_1^e \int_{\ln(y)}^1 \sin(e^x) dx dy$$