Print your name: —————————————————————————— | Score

1. Reverse the order of integration for the following integral.

$$\int_0^4 \int_{\sqrt{y}}^2 e^{x^3} \, dx \, dy \, .$$

Solution:
$$\int_0^2 \int_0^{x^2} e^{x^3} \, dy \, dx$$

2. Evaluate the integral above, using either order of integration.

Solution: It is not possible to evaluate the integral in the original order.

$$\int_0^2 \int_0^{x^2} e^{x^3} \, dy \, dx = \int_0^2 y e^{x^3} \Big|_{y=0}^{y=x^2} \, dx = \int_0^2 x^2 e^{x^3} \, dx = \frac{e^{x^3}}{3} \Big|_0^2 = \frac{e^8 - 1}{3}$$