

**Checkpoint S7: Iterated integrals in Cartesian coordinates**

Consider the iterated integral  $\int_{x=0}^{x=4} \int_{y=\sqrt{x}}^{y=2} \cos(y^3) dy dx$ .

- (a) Sketch the region of integration.
- (b) Write an equivalent iterated integral with the order of integration reversed.
- (c) Choose one of the two orders of integration and evaluate the iterated integral you chose by hand. Explain the reasoning behind your choice.