

15.1, number 1: **Compute** $\int_1^2 \int_0^4 2xy \, dy \, dx$.

Answer:

$$\begin{aligned} \int_1^2 \int_0^4 2xy \, dy \, dx &= \int_1^2 xy^2 \Big|_0^4 \, dx \\ &= \int_1^2 x(16 - 0) \, dx \\ &= 8x^2 \Big|_1^2 \\ &= 8(4 - 1) = \boxed{24} \end{aligned}$$