

Problem 1: Compute the following iterated integrals.

(a) $\int_0^3 \int_0^4 (4x + 3y) \, dx \, dy$

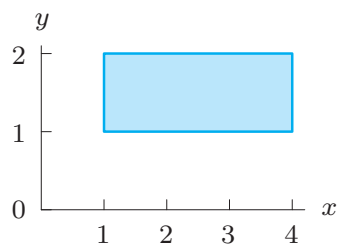
(b) $\int_0^2 \int_0^3 (x^2 + y^2) \, dy \, dx$

(c) $\int_0^1 \int_0^1 ye^{xy} \, dx \, dy$

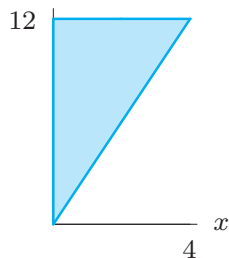
Problem 2: A building is 8 meters wide and 16 meters long. It has a flat roof that is 12 meters high at one corner, and 10 meters high at each of the adjacent corners. What is the volume of the building?

Problem 3: For each part below, write $\int_R f \, dA$ as an iterated integral of the shaded region R .

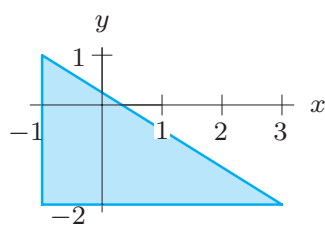
(a)



(b)



(c)



Problem 4: Compute the following iterated integrals. Sketch the region R of integration.

(a) $\int_0^2 \int_0^x e^{x^2} \, dy \, dx$

(b) $\int_1^4 \int_{\sqrt{y}}^y x^2 y^3 \, dx \, dy$

$$(c) \int_1^5 \int_x^{2x} \sin(x) \, dy \, dx$$

Problem 5: Compute the following iterated integrals by reversing the order of integration.

$$(a) \int_0^2 \int_y^2 e^{x^2} \, dx \, dy$$

$$(b) \int_0^1 \int_{x^2}^1 \sqrt{y} \sin(y) \, dy \, dx$$