

EXERCISES Page 325 1, 2, 7-11

Page 339 1-4, 6, 7

1. Evaluate.

(a) $\int_0^1 [\int_0^x \frac{1}{1+x^4} dy] dx.$

(b) $\int_0^4 [\int_0^y 3\sqrt{y^2+9} dx] dy.$

(c) $\int_0^{\frac{\pi}{2}} [\int_0^{\cos x} y dy] dx.$

(d) $\int_1^{e^3} [\int_0^{\frac{1}{y}} e^{xy} dx] dy.$

(e) $\int_1^3 [\int_0^{\ln y} ye^x dx] dy.$

(f) $\int_0^1 [\int_0^x (x+y)^2 dy] dx.$

- Find the volume above the xy -plane bounded by the paraboloid $z = x^2 + y^2$ and the planes $x = \pm 3$, $y = \pm 5$.
- Find the volume under the plane $z = x + 2y$ and over the rectangle $R = \{(x, y) : 1 \leq x \leq 2 \text{ and } 3 \leq y \leq 5\}$.
- Find the volume of the solid bounded by the coordinate planes, the planes $x = 1$ and $y = 2$, and the surface $2z = xy$.