

83.

a. $8 \log(2) - \frac{7}{2} \log(7) + \frac{3}{2} \log(3)$

b. $\frac{1}{4}$

c. 20π

d. $\frac{62}{15} - \frac{6}{5}\sqrt{3}$

84.

a. $\int_0^{\sqrt{5}} \int_0^2 f(x, y) dx dy + \int_{\sqrt{5}}^3 \int_0^{\sqrt{9-y^2}} f(x, y) dx dy$

b. $\int_0^{\frac{\pi}{2}} \int_0^{\cos(y)} f(x, y) dx dy$

85.

a. $-\frac{\cos(1)}{2} + \frac{1}{2}$

b. $\frac{e}{2} - \frac{1}{2}$

c. $\frac{e}{2} - \frac{1}{2}$

d. $\frac{3}{2} \log(2) - 1 + 5 \arctan(2) - \frac{5\pi}{4}$

86.

a. 0

b. 0

c. $\frac{3}{2} - \frac{3\pi}{4}$

87.

a. $-\frac{\pi}{a} + \pi$

b. π

88.

a. 6

b. 4π

c. $\frac{16}{3}$

d. 2

89.

a. $\pi(e - 1)$

b. $\frac{\pi}{4}(b^2 \log(b^2) - b^2 - a^2 \log(a^2) + a^2)$

c. $\frac{1}{4}(e^9 - 1)$

d. $13\frac{\sqrt{2}}{6}$

e. $\frac{\pi}{4}(2 \log(2) - 1)$

90.

a. πab

b. $(\arctan(\sqrt{6}) - \arctan(\sqrt{2}))\frac{3}{4}\sqrt{2}$

c. $\frac{\pi}{3} + \frac{\sqrt{3}}{2}$

91.

a. $\pi(-\frac{7}{6} + \frac{4}{3}\sqrt{2})$

b. 8π

c. 25π

d. $\frac{2}{3}\pi$

e. $\pi(-\frac{31}{8} + \frac{5}{4}\sqrt{15})$

92.

a. $\frac{1}{3}$

b. $\frac{1}{2}(e - 1)$

c. 2