

Answers to Test 3, 1999

1. (a) $1/2$
(b) π^2
(c) $4 \sin(1)/3$
2. (a) $\int_0^1 \int_y^1 f(x, y) dx dy$
(b) $\int_0^1 \int_0^{y^{1/3}} f(x, y) dx dy$
3. (a) 16
(b) 8
4. $(r, \theta, z) = (2, \pi/4, 2)$
 $(\rho, \phi, \theta) = (2\sqrt{2}, \pi/4, \pi/4)$
5. $\int_0^3 \int_0^2 \int_0^{\sqrt{4-y^2}} dz dy dx$
6. $\int_0^{2\pi} \int_0^{\sqrt{2}} \int_{r^2}^{\sqrt{6-r^2}} r dz dr d\theta$
7. $\pi/3$