

## Answers to Test 3, 1998

1. (a) 2

(b)  $2\pi - 2$

(c)  $2\sqrt{2} - 2$

2.  $(r, \theta, z) = (1, 0, 1)$

$(\rho, \theta, \phi) = (\sqrt{2}, 0, \pi/4)$

3. 55

4.  $\int_0^1 \int_0^{\sqrt{4-y^2}} \int_0^{4-x^2-y^2} dz dx dy$

5.  $4\pi/3$

6.  $2\pi^2$