Answers to Test 3, 1992

1. (a) $-1/12$

   (b) 4

   (c) $(e-1)/3$

2. Divergence: 0
   Curl: $\langle 1, 1, 1 \rangle$

3. $(r, \theta, z) = (2, 11\pi/6, -2)$
   $(\rho, \phi, \theta) = (2\sqrt{2}, 3\pi/4, 11\pi/6)$ (note the order of the angles here)

4. $\pi/20$

5. $\displaystyle\int_0^{\pi/3} \int_0^{2\pi} \int_0^2 \rho^2 \sin\phi \, d\rho \, d\theta \, d\phi$

6. $\pi/2$