

Answers to Test 3, 1994

- (a) $15/8$
(b) $1/2$
(c) 4
- $\operatorname{div} \vec{F} = 2y$
 $\operatorname{curl} \vec{F} = \langle 0, 2(z - x), 0 \rangle$
- $(r, \theta, z) = (\sqrt{2}, \pi/4, \sqrt{6})$
 $(\rho, \phi, \theta) = (2\sqrt{2}, \pi/6, \pi/4)$ (note the order of the angles here)
- $\frac{\pi}{2}(e^{16} - 1)$
- $\int_0^{3\pi/4} \int_0^{2\pi} \int_0^3 \rho^2 \sin \phi \, d\rho \, d\theta \, d\phi$
- $2\pi(1 - \cos(3))$