SPHERICAL COORDINATE CONVERSIONS

Convert from spherical, (ρ,θ,φ), to rectangular, (x,y,z), coordinates.

1. $(1,0,0)$

2. $(3,0,\pi)$

3. $(1,\pi/6,\pi/6)$

4. $(2,\pi/2,3\pi/4)$

5. $(4,\pi/4,\pi/6)$

6. $(2,\pi/4,\pi/4)$

Convert from rectangular, (x,y,z), to spherical, (ρ,θ,φ), coordinates.

7. $(-3,0,0)$

8. $(1,1,\sqrt{2})$

9. $(\sqrt{3},0,1)$

10. $(-\sqrt{3},-3,-2)$

11. $(1,-1,-\sqrt{2})$

12. $(\sqrt{3},1,2\sqrt{3})$

Write the given equation in spherical coordinates.

13. $x^2+y^2+z^2=25$

14. $x^2+y^2=2y$

15. $x^2+y^2+9z^2=36$

16. $z=1$ (write as a function of ρ)