1.(1 pt) What are the rectangular coordinates of the point whose cylindrical coordinates
are $(r = 1,\ \theta = 0,\ z = 0)$?

x = _____
y = _____
z = _____

2.(1 pt)
What are the rectangular coordinates of the point whose cylindrical coordinates are
$(r = 4,\ \theta = \frac{5\pi}{7},\ z = 9)$?

x = _____
y = _____
z = _____

3.(1 pt)
What are the cylindrical coordinates of the point whose rectangular coordinates are $(x = 4,\ y = 2,\ z = -5)$?

r = _____
θ = _____
z = _____

4.(1 pt)
What are the cylindrical coordinates of the point whose rectangular coordinates are $(x = -3,\ y = 1,\ z = -2)$?

r = _____
θ = _____
z = _____

5.(1 pt)
What are the rectangular coordinates of the point whose spherical coordinates are
$(2,\ \frac{-3\pi}{6},\ \frac{-4\pi}{6})$?

x = _____
y = _____
z = _____

6.(1 pt)
What are the spherical coordinates of the point whose rectangular coordinates are
$(4,\ 1,\ 5)$?

ρ = _____
θ = _____
ϕ = _____

7.(1 pt)
What are the cylindrical coordinates of the point whose spherical coordinates are
$(4,\ -3,\ \frac{4\pi}{6})$?

r = _____
θ = _____
z= _____

8.(1 pt)
Match the given equation with the verbal description of the surface:

A. Half plane
B. Plane
C. Cone
D. Circular Cylinder
E. Elliptic or Circular Paraboloid
F. Sphere

___ 1. $\rho = 4$
___ 2. $\rho\cos(\phi) = 4$
___ 3. $\theta = \frac{\pi}{3}$
___ 4. $z = r^2$
___ 5. $r^2 + z^2 = 16$
___ 6. $\phi = \frac{\pi}{3}$
___ 7. $r = 4$
___ 8. $r = 2\cos(\theta)$
___ 9. $\rho = 2\cos(\phi)$

9.(1 pt)
If an astronomer is using polar coordinates, then which of the following is the most likely object of study?

- A. the whole universe
- B. a globular cluster
- C. a planet
- D. a solar system

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