

## CYLINDRICAL COORDINATE CONVERSIONS

Convert from cylindrical,  $(r, \theta, z)$ , to rectangular,  $(x, y, z)$ , coordinates.

1.  $(2, \pi/2, 3)$
2.  $(2, \pi/4, 1)$
3.  $(3, \pi/6, 2)$
4.  $(2, 7\pi/4, 8)$
5.  $(2, 4\pi/3, 3)$
6.  $(1, 5\pi/6, -3)$

Convert from rectangular,  $(x, y, z)$ , to cylindrical,  $(r, \theta, z)$ , coordinates.

7.  $(2, 2, 2)$
8.  $(-1, 0, 2)$
9.  $(0, 1, -5)$
10.  $(-2, 2, 3)$
11.  $(1, \sqrt{3}, 4)$
12.  $(0, -1, -2)$

Write the given equation in cylindrical coordinates.

13.  $x^2 + y^2 + z^2 = 25$
14.  $x^2 + y^2 = 2y$
15.  $x^2 + y^2 + 9z^2 = 36$
16.  $x = 1$  (write as a function of  $r$ )