

MA 213 Worksheet #17

Section 15.7

03/21/19

- 1** Plot the point whose cylindrical coordinates are given. Then find the rectangular coordinates of the point.

15.7.1a $(4, \pi/3, -2)$

15.7.1b $(2, -\pi/2, 1)$

- 2** Change from rectangular to cylindrical coordinates.

15.7.3a $(-1, 1, 1)$

15.7.3b $(-2, 2\sqrt{3}, 3)$

- 3** Sketch the solid described by the given inequalities.

15.7.11 $r^2 \leq z \leq 8 - r^2$

- 4** 15.7.17 Use cylindrical coordinates to evaluate $\iiint_E \sqrt{x^2 + y^2} dV$ where E is the region that lies inside the cylinder $x^2 + y^2 = 16$ and between the planes $z = -5$ and $z = 4$.

- 5** 15.7.19 Evaluate $\iiint_E (x + y + z) dV$, where E is the solid in the first octant that lies under the paraboloid $z = 4 - x^2 - y^2$.

- 6** 15.7.21 Evaluate $\iiint_E x^2 dV$, where E is the solid that lies within the cylinder $x^2 + y^2 = 1$, above the plane $z = 0$, and below the cone $z^2 = 4x^2 + 4y^2$.