

## ASSIGNMENT

Read 15.4 up to Example 4.

- p. 905 1, 5, 7, 17, 21, 23, 27, 31, 35

## TAKE-AWAYS

After reading this section, attending this class and doing this homework you should

- know how to integrate over a 2-d region that is best described in terms of polar coordinates
- understand why  $dA = r dr d\theta$
- develop intuition about what kinds of 2-d regions are best described in terms of polar coordinates
- see how to integrate over a 3-d region that is best described in terms of cylindrical coordinates
- understand why  $dV = r dr d\theta dz$
- develop intuition about what kinds of 3-d regions are best described in terms of cylindrical coordinates
- realize that this is exactly the same as what we've been doing but the regions and surfaces happen to be more easily described using a different coordinate system