

## 16.3 Triple Integrals

base  $R$   $\left[ \begin{array}{l} \text{slices have } \text{const} \leq \text{var } 1 \leq \text{const} \\ \text{along a slice, } \text{fnc}(\text{var } 1) \leq \text{var } 2 \leq \text{fnc}(\text{var } 1) \\ \text{over a pt } \text{fnc}(\text{var } 1, \text{var } 2) \leq \text{var } 3 \leq \text{fnc}(\text{var } 1, \text{var } 2) \end{array} \right.$

Rules for Choosing var 3:

1. Must be able to do var 3 integration.
2. Avoid choosing a variable that appears in more than 2 boundary equations.
3. Try to use the most complicated 2-variable boundary equation as part of  $R$ .

Key Idea:

- The boundary equations that include var 3 define the "top" & "bottom." If the others don't fully define  $R$ , we need "top = bottom" also.