$\frac{\Delta h_n}{h_s} \times \frac{R_n + R_{n+1}}{2}$ = percent removal	
$0.20 \times \frac{100 + 80}{2}$ =	18.00
$0.11 \times \frac{80 + 70}{2}$ =	8.25
$0.15 \times \frac{70 + 60}{2}$ =	9.75
$0.54 \times \frac{60 + 50}{2}$ =	29.70
1.00	65.70

3. Determine the percent removal if the liquid had been mixed and the solids were measured.
   a. Assume the initial solids concentration is equal to 100 and that at the end of the settling period the concentration of the solids at the top of the column is equal to zero.
   b. Set up a computation table and determine the remaining solids after settling.

$\Delta h \times \frac{TSS_n \times TSS_{n+1}}{2}$ = average TSS	
$0.20 \times \frac{0 + 20}{2}$ =	2.00
$0.11 \times \frac{20 + 20}{2}$ =	2.75
$0.15 \times \frac{30 + 40}{2}$ =	5.25
$0.54 \times \frac{40 + 50}{2}$ =	24.30
	34.30

The percent removal is $R_t = 100 - 34.30 = 65.70$

Comment To account for the less than optimum conditions encountered in the field, the design settling velocity or overflow rate obtained from column studies often is multiplied by a factor of 0.65 to 0.85, and the detention times are multiplied by a factor of 1.25 to 1.5.

Inclined Plate and Tube Settling

Inclined plate and tube settlers are shallow settling devices consisting of stacked offset trays or bundles of small plastic tubes of various geometries (see Fig. 5–25*a*) that are used to enhance the settling characteristics of sedimentation basins. They are based on