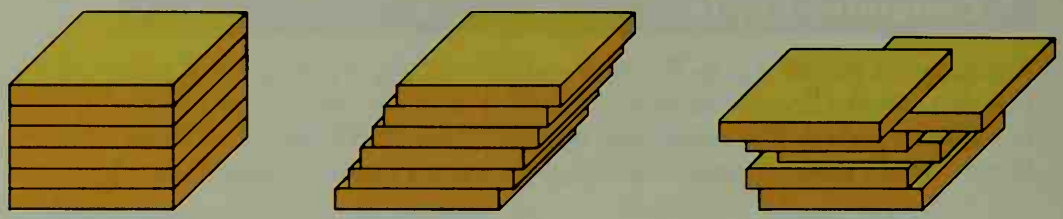
Extra

Cavalieri's Principle

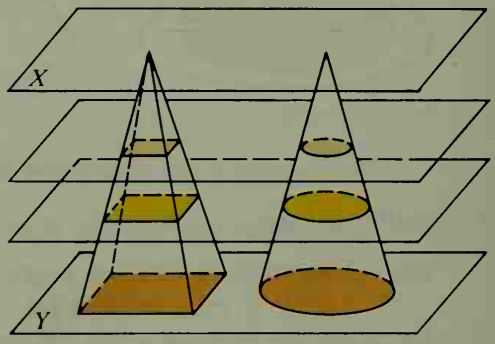
Suppose you have a right rectangular prism and divide it horizontally into thin rectangular slices. The base of each rectangular slice, or *cross section*, has the same area as the base of the prism. If you rearrange the slices, the total volume of the slices does not change.



Bonaventura Cavalieri (1598–1647), an Italian mathematician, used this idea to compare the volumes of solids. His conclusion is known as *Cavalieri's Principle*.

Cavalieri's Principle

If two solids lying between parallel planes have equal heights and all cross sections at equal distances from their bases have equal areas, then the solids have equal volumes.



Using Cavalieri's Principle you can find the volume of an oblique prism. Consider a right triangular prism and an oblique prism that have the same base and height.