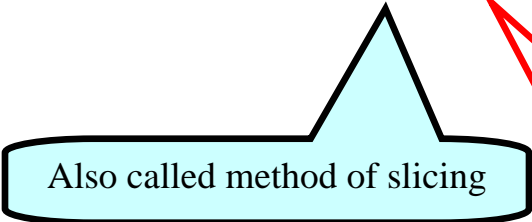


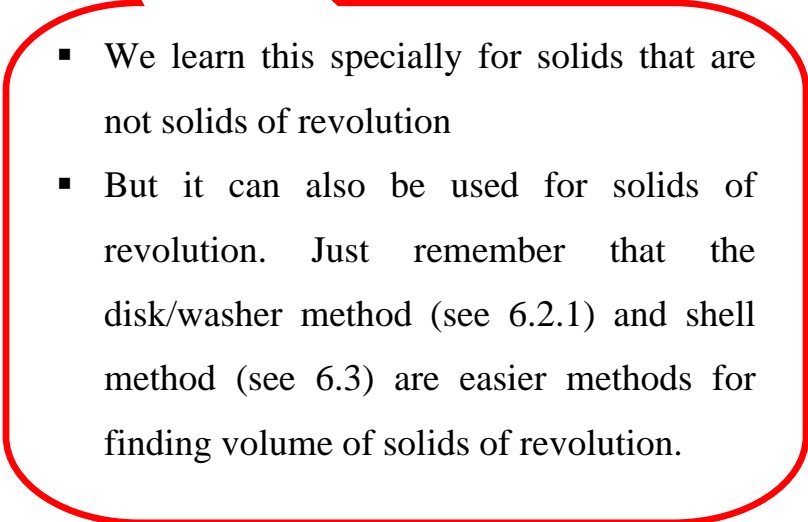
Part 2 of Section 6.2***Volumes of Solids******by******Method of Cross Sections******(specially for those solids which are NOT solids of revolution)*****Learning outcomes**

After completing this section, you will inshaAllah be able to

1. use **method of cross section** to find volume of solids



Also called method of slicing

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- We learn this specially for solids that are not solids of revolution
 - But it can also be used for solids of revolution. Just remember that the disk/washer method (see 6.2.1) and shell method (see 6.3) are easier methods for finding volume of solids of revolution.

Recall from page 6.2₃**Method of volume by cross-sections****Cross-sections perpendicular to X-axis**

Let S be a solid bounded by $x = a$, $x = b$ and the area of cross-section (perpendicular to X-axis) at x is $A(x)$ then

$$V = \int_a^b A(x) dx$$

Thinking that solid lies along X-axis

Cross-section perpendicular to Y-axis

Let S be a solid bounded by $y = c$, $y = d$ and the area of cross-section (perpendicular to Y-axis) at y is $A(y)$ then

$$V = \int_c^d A(y) dy$$

Thinking that solid lies along Y-axis

Main task

- To find $A(x)$, $A(y)$
 - need tricks or formulas from e.g. geometry, trigonometry etc

See examples 1, 2, 3 done in class

End of Part 1 of Section 6.2