

# 7.2 Volume by Revolution

## Disk Method

### Warm Up

The oil drum has a height of 3ft and a radius of 2ft.  
Find the volume.

$$V = \pi r^2 \cdot h$$
$$\pi (2)^2 (3)$$
$$V = 12\pi \text{ ft}^3$$



Calc in Motion

Volumes by Revolution.gsp (spin region  
disk/washers  
tab)

Geometry

$$A = bh$$

$$V = \pi r^2 h$$

Calculus

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

$$V = \pi \int_a^b [R(x)]^2 dx$$

### Stand and Deliver

#### Disk Method

7.2

$$\pi \int_a^b R(x)^2 dx$$

Radius:

R(x): Top - Bottom

$$\pi \int_a^b (\text{top} - \text{bottom})^2 dx$$

$$\pi \int_c^d R(y)^2 dy$$

Radius:

R(y): Right - Left

$$\pi \int_c^d (\text{right} - \text{left})^2 dy$$

# The cucumber model



## Attachments

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Volumes by Revolution.gsp

Volumes on Base.gsp