MAT137Y1 – LEC0501

Calculus!

Volumes – 1

UNIVERSITY OF TORONTO

February 4th, 2019

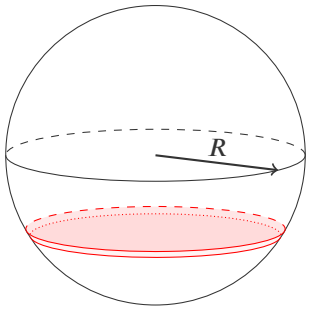
For next lecture

For Wednesday (Feb 6), watch the videos:

- Volumes: 10.2
- Sequences: 11.1, 11.2

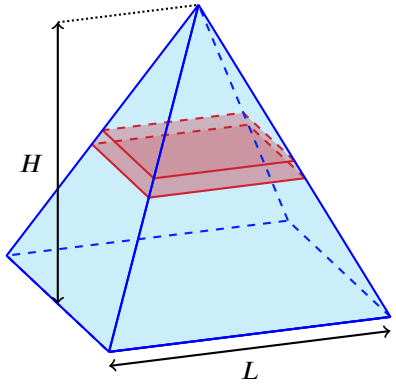
Volume and area of a sphere

Find the volume of a ball of radius R by slicing it.



Volume of a pyramide – *Homework*

Find the volume of the right pyramid of height H and square base with side length L by slicing.



Many axis of rotation

Let R be the region in the first quadrant bounded between the curves with equations $y = x^3$ and $y = \sqrt{x}$.

Compute the volume of the solid of revolution obtained by rotating R around...

1. ... the x-axis
2. ... the y-axis
3. ... the line $y = -1$

An equation for volumes by "slicing" – *Homework*

Let $f : [a, b] \to \mathbb{R}$ be a continuous positive function.

Let R be the region in the first quadrant enclosed between the graph of f and the x-axis.

Find a formula for the volume of the solid of revolution obtained by rotation the region R around the x-axis.