READING ASSIGNMENT 04

NAME: _____

§6.1 (Area between curves), §6.2 (Setting up integrals)

Due 2 July 2018

LEARNING OBJECTIVES

By the end of this lesson, you will be able to:

- compute the area between two curves,
- use integrals to find the volume of a solid body by integrating cross-sectional areas,
- find total quantities (mass, population, flow rate) by integrating marginal quantities (density, population density, flux),
- use integrals to find the average value of a function across an interval.

REVIEW

- This section relies on basic geometry: the Pythagorean theorem, similar triangles, and your ability to visualize the cross-sections of shapes in 3D. You may not need to review these skills, but it will help to keep them in mind!

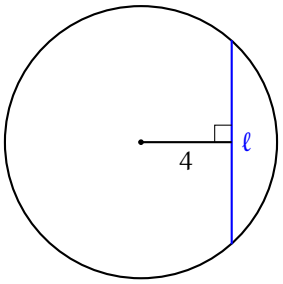
READING

- Read section 6.1 from the beginning through Example 3, but stop before the "Integration along the y-Axis" subsection on page 283. Read the section summary on page 285.
- Read section 6.2, but skip the "Flow Rate" subsection on pages 292-293.

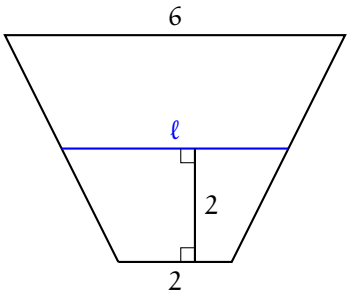
QUESTIONS

(1) Find the missing length ℓ in the figures below.

(a) The circle has radius 6.



(b) The height of the trapezoid is 4. (*Hint: similar triangles.*)



(2) Write down formulas for the following shapes:

(a) A parabola opening to the right with apex at $(-3, 0)$, symmetric about the x-axis.

(b) A circle with radius 3 and center $(-2, 4)$.