

OUTCOMES: At the completion of this chapter students will be able to:

1. Find area between two functions.
2. Find volumes using slicing, disk and washer methods.
3. Find the volumes of a solid using cylindrical shells.
4. Use integrals to find the length of a plane curve.
5. Use integrals to find the arc length of parametric curves.
6. Find the area of a surface generated by a revolving plane curve.
7. Apply the Mean Value Theorem to Integrals and on Newton's Law of Cooling.
8. Apply the Mean Value Theorem to average velocity of a particle.
9. Apply integrals to various physics problems involving work, fluid pressure and force.

VOCABULARY & METHODS

Reimann Sums	area between curves	upper area boundary
definite integral	cross sectional area	lower area boundary
second area approach	volumes by slicing	method of disks
right cylinder	axis of revolution	method of washers
arc length of a smooth curve		method of cylindrical shells
smooth curve	smooth function	polygonal path
arc length of a parametric curve		area of a surface of revolution
arithmetic mean	work – energy	kinetic energy
fluid pressure	force	mass density
		weight density
hyperbolic functions	sinh	cosh
		tanh
		csch
		sech
		coth

ASSIGNMENTS

Sect 7.1: P. 448: 1, 3, 5, 9 – 27 by 3's

Sect 7.2: P. 456-457: 1, 3, 5, 9 – 24 by 3's, 29, 35, 37

Sect 7.3: Look closely on P. 460 eqn (1) and P. 461 eqn (2)

P. 464: 1 – 15 odd **Hand in P. 464 #20 & 21** (This is new stuff !!)

Sect 7.4: Arc length definition P. 465 Arc length formula P. 467 (4) (5)

Arc length parametric curves P. 468

P. 469: 1 – 13 odd, **Hand in #19:a – c** (This is new!!)

Sect 7.5: Surface area of revolving curve P. 473

P. 474: 1 – 7 odd (This is new stuff also!!)

Sect 7.6: Review Mean Value Theorem + Newton's Law of Cooling P.478

P. 480 – 481: 3 – 13 odd, 21, 24, 26

Sect 7.7: P. 488 – 489: 1, 2, 6, 7, 12, 15, 19 (New stuff)

Sect 7.8: P. 495: 1 – 9 odd, 13 (New stuff)

REVIEW: **P. 507 - 509: 9, 11, 12, 14, 16 – 18 all, 21, 23 Hand all in!**

TEST Chapter 7