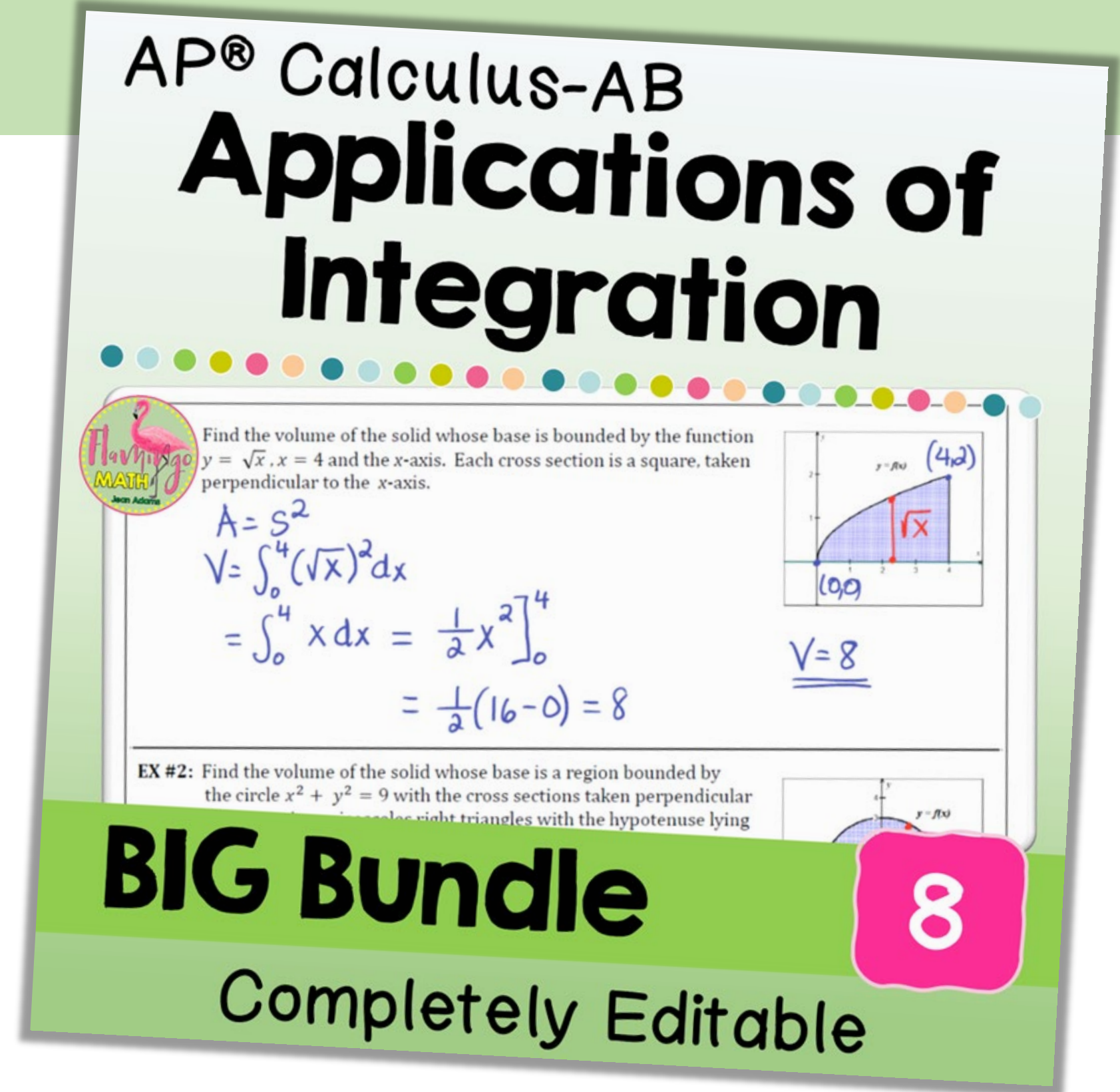
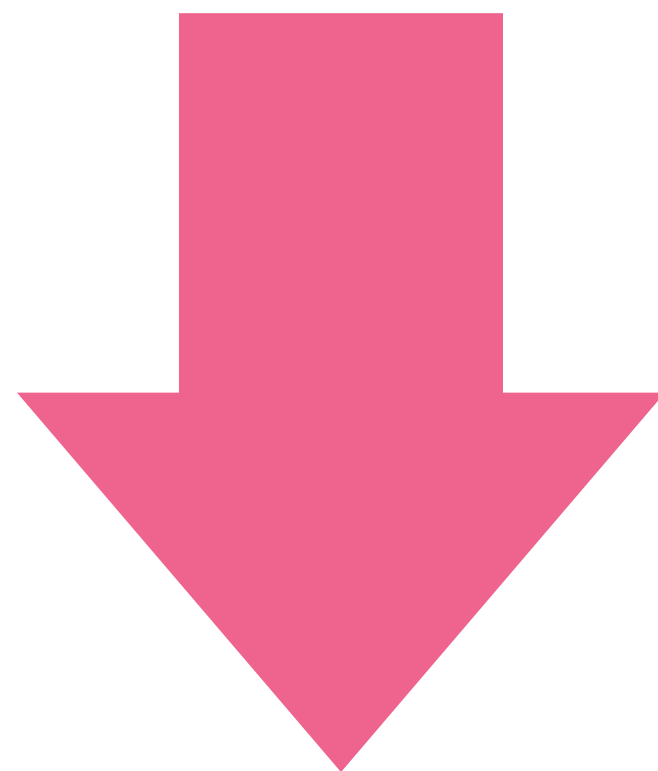


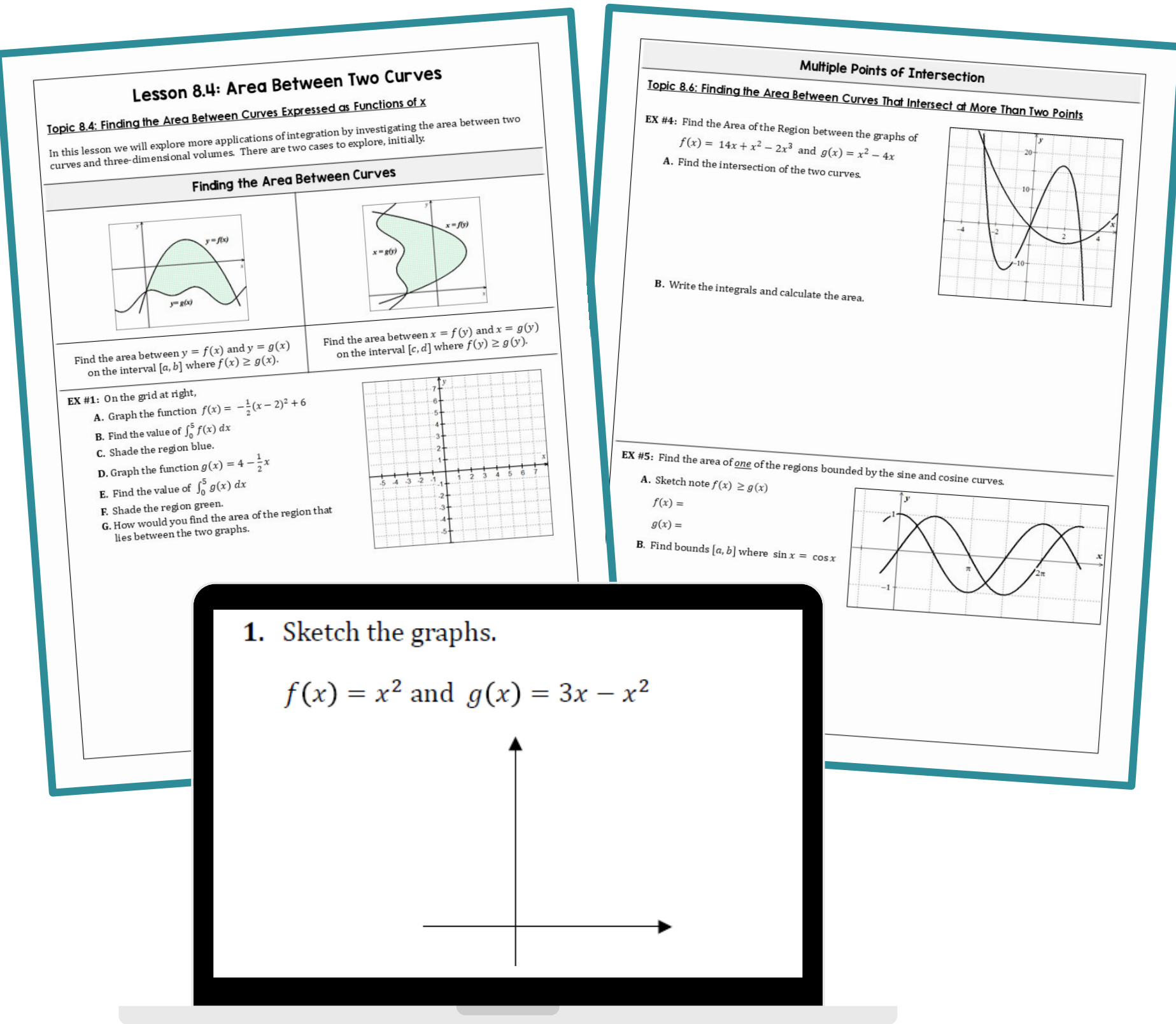
This is the BIG Bundle for AP Calculus AB Applications of Integration.

All new completely-editable bundle of notes, practice and more!

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WHAT IS INCLUDED?



Editable Guided Student Notes, Practice sets, and Daily Quizzes



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Scope, Sequence, Pacing

Rigorous lessons and practice sets aligned to course standards is here.



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Is your class instruction aligned to the CED learning objectives and topics?



You need resources that will challenge your students to the AP[®] rigor for success.

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8.6 Volumes -The Washer Method Form A

Name _____
Date _____ Period _____

Find the volume of the solid obtained by rotating the region bounded by the given curves about the specified line.

1. $f(x) = 2x$, $y = x$, $x = 1$
about the x -axis.

8.6 Volumes -The Washer Method Form B

Name _____
Date _____ Period _____

Find the volume of the solid obtained by rotating the region bounded by the given curves about the specified line.

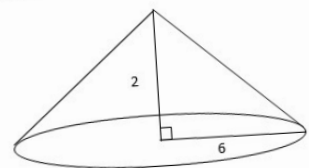
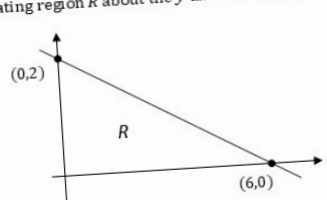
1. $y = 2x + 1$, $y = x$, $x = 2$
about the x -axis.

Lesson 8.6: Volumes by Disc and Washer Methods

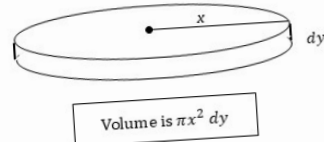
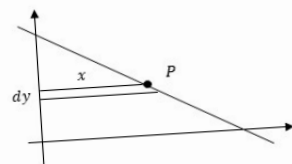
Topic 8.9: Volume with Disc Method: Revolving Around the x - or y -Axis

We have used integration to evaluate areas of regions. Now we will explore ways that integration can be used to find volumes of solids formed by rotating a region about some given straight line.

If a region in a plane is revolved about a line, the resulting solid is a *solid of revolution*, and the line is called the *axis of revolution*. The simplest such solid is a right circular cylinder or *disc*, which is formed by revolving a rectangle about an axis adjacent to one side of the rectangle. For example, consider the region R , bounded by the x -axis, the y -axis, and $x + 3y = 6$. Now imagine rotating region R about the y -axis 360° . The solid formed will become a cone.



To find the volume of the cone, we could simply use the formula from geometry: $V = \frac{1}{3}\pi r^2 h$, or 24π . Instead, let's explore the idea of a "strip" sliced through the region, and revolved around the y -axis. Remember that x would represent the coordinate of some point P on the graph and, as such, is also the length of our strip. When the "strip" is rotated or revolved, around the y -axis, it forms a thin disc.



Volume is $\pi x^2 dy$

So, the cone can be created by an infinite number of thin horizontal slices or "strips" whose sum will create the cone.

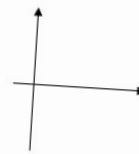
EX #1: Write the volume of the cone as an integral, on the interval from $[0, 2]$. Then, find the volume of the cone.

8.6 Volumes by Disc & Washer Methods Homework

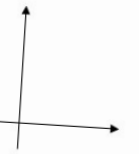
Name _____
Date _____ Period _____

Problems 1 - 12, Find the volume of the region bounded by the given functions and revolved about the given axis.

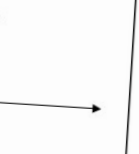
1. $y = x^2 - 4x$; $y = 0$ about the x -axis



2. $y = x$; $y = 3$; $x = 0$ about the y -axis



- $y = \sqrt{9 - x^2}$; $y = 0$; $x = 0$ about the x -axis



Cover the Standards

Each lesson will provide you and your students with the skills and learning objectives necessary for success in the AP Environment.

- ☐ You will find an editable scope and sequence document to track the learning objectives for the unit.
- ☐ Each lesson includes Google Slides for your presentation needs.
- ☐ You will also have a **fully-editable version** for every lesson, practice set, daily quiz and assessment.
- ☐ A pacing guide for both AB and BC lessons and testing schedule.

AP CALCULUS AB CURRICULUM

Scope and Sequence

Unit 8: Applications of Integration

Lesson	Skills & Learning Objectives
[8.1] Finding Average Value for Integrals	☐ Apply definite integrals to problems involving the average value of a function over an interval
[8.2] Another Look at Particle Motion	☐ Use properties of integration and accumulation to analyze position, velocity, acceleration functions
[8.3] Accumulation Functions in Applied Contexts	☐ Describe integration as an accumulation process
[8.4] Area Between Two Curves	☐ Find the area of a region between two curves using integration
[8.5] Volumes by Cross Sections	☐ Find the volume of a solid of revolution with known cross sections
[8.6] Volume of Revolution: Disc and Washer Methods	☐ Find the volume of a solid of revolution using the disc and washer methods
[8.7] Volumes-Revolving Around Other Axes	☐ Find the volume of a solid by revolving about a line other than an axis

Full Year Curriculum

The MEGA Bundle provides eight units for the entire AP Calculus AB course, including activities, video lessons, presentation tools, and so much more.

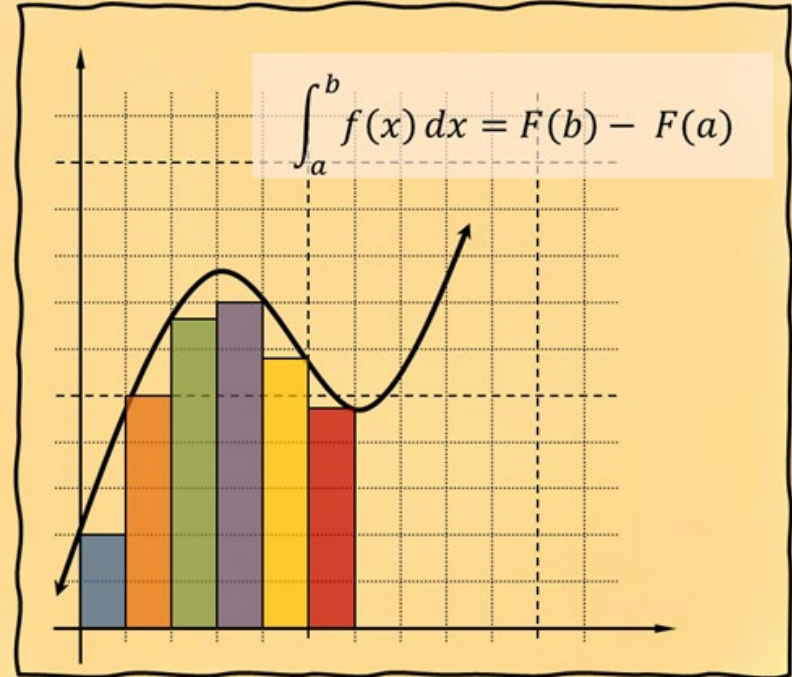
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