

AP Exam Prep



APEXAM





A

Remember to go to [AP Classroom](#) to assign students the online **Personal Progress Check** for

Whether assigned as homework or **Personal Progress Check** provides each student with immediate feedback related to this unit's topics

Personal Progress Check 2

Multiple-choice: ~30 questions

Free-response: 3 questions (partial)

Building the Mathematical Practices

1.E 2.B 4.C

Mathematicians know that a solution will only be as good as the procedure used to

correct and incorrect can often be traced

words, mathematicians know that the details

mathematical procedures—including the

important notation, such as a parenthesis, or misapply the product rule by taking the derivative of each factor separately and

practicing the skill of applying mathematical procedures and learning to self-correct before

This is also an opportunity to revisit and reinforce the practice of connecting representations, as students will be seeing derivatives presented in analytical, numerical,

the original function, f , from a graphical representation of f'


of a derivative (such as misinterpreting it as the

Preparing for the AP Exam

Students should practice presenting clear mathematical structures that connect

of the line tangent to a curve at a given point based on information provided in a table of values, as in [2013 AP Exam Free-Response Question 3 Part A](#), students

UNIT AT A GLANCE (cont'd)

Enduring Understanding	Topic	Suggested Skills	Class Periods
			a ñ a ñ
FUN-3	2.8 The Product Rule	1.E	
	2.9 The Quotient Rule	1.E	
	2.10 Finding the Derivatives of Tangent, Cotangent, Secant, and/or Cosecant Functions	1.D rule or procedure based on the relationship	
 Go to AP Classroom to assign the Personal Progress Check for Unit 2. Review the results in class to identify and address any student misunderstandings.			

SAMPLE INSTRUCTIONAL ACTIVITIES

below were developed in partnership with teachers from the AP community to share ways

Activity	Topic	Sample Activity
1	2.1 2.2 2.3	Graph and Switch
2	2.4	Match Mine Create cards containing graph images of functions with various continuous,
3	2.5 2.6 2.7 2.8 2.9 2.10	Error Analysis
4	2.5 2.6 2.7 2.8 2.9 2.10	Graphic Organizer Graphic Organiz 2.6

TOPIC 2.1

'H®QLQJ \$YHUDJH
**Instantaneous Rates
of Change at a Point**

SUGGESTED SKILL

 *Connecting Representations*

2.1 Identify mathematical information from graphical, symbolic, numerical, and/or

ENDURING UNDERSTANDING

CHA-2

Derivatives allow us to determine rates of change at an instant by applying limits to

LEARNING OBJECTIVE

CHA-2.A

Determine average rates

ESSENTIAL KNOWLEDGE

CHA-2.A.1

$$\frac{f(x) - f(a)}{x - a} \quad \frac{f(a + h) - f(a)}{h} \text{ and}$$

CHA-2.B

Represent the derivative of a function as the limit of a

CHA-2.B.1

The instantaneous rate of change of a function at $x = a$

$$\lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h} \text{ or } \lim_{x \rightarrow a} \frac{f(x) - f(a)}{x - a},$$

denoted $f'(a)$

Differentiation: Definition and Fundamental Properties

SUGGESTED SKILL

*Implementing
Mathematical
Processes*


1.E



TOPIC 2.4

Differentiation: Definition and Fundamental Properties

SUGGESTED SKILL

 *Implementing
Mathematical
Processes*

1.E

Apply appropriate
mathematical rules or
procedures, with and

AVAILABLE RESOURCE

f Professional
Development >
[Selecting Procedures
for Derivatives](#)

TOPIC 2.6

**Derivative Rules: Constant,
Constant Multiple****Required Course Content****ENDURING UNDERSTANDING****FUN-3****LEARNING OBJECTIVE****FUN-3.A**

Calculate derivatives of


ESSENTIAL KNOWLEDGE**FUN-3.A.2****FUN-3.A.3**

and constant multiple properties can be used

TOPIC 2.7

Derivatives of $\cos x$, $\sin x$, e^x , and $\ln x$

SUGGESTED SKILL

 *Implementing Mathematical Processes*


1.E

Apply appropriate mathematical rules or procedures, with and

LEARNING OBJECTIVE

FUN-3.A

SUGGESTED SKILL

 *Implementing
Mathematical
Processes*

1.E

Apply appropriate
mathematical rules or
procedures, with and

AVAILABLE RESOURCE

f Professional
Development >
[Selecting Procedures
for Derivatives](#)

TOPIC 2.8

The Product Rule**Required Course Content****ENDURING UNDERSTANDING****FUN-3****LEARNING OBJECTIVE****FUN-3.B**


Calculate derivatives of

ESSENTIAL KNOWLEDGE**FUN-3.B.1**

TOPIC 2.9

The Quotient Rule

SUGGESTED SKILL

 *Implementing Mathematical Processes*

1.E

Apply appropriate mathematical rules or procedures, with and



AVAILABLE RESOURCES

- f* Professional Development > [Selecting Procedures for Derivatives](#)
- f* AP Online Teacher Community Discussion > [Simplifying the Quotient Rule](#)

ENDURING UNDERSTANDING 7.3 c0 0 0.7 K7653 6385 Tm [(E)r q 1 0 111 5192726 T f.2



LEARNING OBJECTIVE

FUN-3.B

Calculate derivatives of

ESSENTIAL KNOWLEDGE

FUN-3.B.2

