

## Calculator Policy

Calculators are allowed only for some or all parts of AP Exams in these subjects: Biology, Calculus (AB/BC), Chemistry, Physics 1, Physics 2, Physics C: Mechanics, Physics C: Electricity and Magnetism, and Statistics. (Calculators are **not allowed** for any other AP Exams, including Macroeconomics, Microeconomics, and Environmental Science.) Students may bring up to two permitted calculators to the exam. Graphing calculators must be on the approved calculator list. See page 52.

### Biology

Type of Calculator	Exam Section I Multiple Choice	Exam Section II Free Response
<ul style="list-style-type: none"> <li>▪ Allowed:               <ul style="list-style-type: none"> <li>◆ Four-function calculator (with square root)</li> <li>◆ Scientific (nongraphing) calculator, but must <b>not</b> have unapproved features or capabilities (see the list of unapproved calculators and technology on page 50)</li> <li>◆ Graphing calculator</li> </ul> </li> </ul>	Allowed	Allowed

### Calculus AB/Calculus BC

Type of Calculator	Exam Section I Multiple Choice	Exam Section II Free Response
<ul style="list-style-type: none"> <li>▪ Graphing calculator required and expected to have built-in capability to:               <ul style="list-style-type: none"> <li>◆ Plot the graph of a function within an arbitrary viewing window</li> <li>◆ Find the zeros of functions (solve equations numerically)</li> <li>◆ Numerically calculate the derivative of a function</li> <li>◆ Numerically calculate the value of a definite integral</li> <li>◆ If these capabilities aren't built in, the student should enter appropriate programs into the calculator before the exam</li> </ul> </li> <li>▪ Not allowed:               <ul style="list-style-type: none"> <li>◆ Nongraphing and other types of calculators are prohibited, even as a second calculator</li> </ul> </li> </ul>	<p>Not allowed for Part A</p> <p>Required* for Part B</p>	<p>Required* for Part A</p> <p>Not allowed for Part B</p>

\*"Required" indicates some questions cannot be answered without a graphing calculator and **no** other calculator type is permitted.

### Chemistry

Type of Calculator	Exam Section I Multiple Choice	Exam Section II Free Response
<ul style="list-style-type: none"> <li>▪ Allowed:               <ul style="list-style-type: none"> <li>◆ Four-function calculator (not recommended)</li> <li>◆ Scientific (nongraphing) calculator (recommended), but must <b>not</b> have unapproved features or capabilities (see the list of unapproved calculators and technology on page 50)</li> <li>◆ Graphing calculator</li> </ul> </li> </ul>	Not allowed	Allowed

### Physics 1, Physics 2, Physics C: Mechanics, Physics C: Electricity and Magnetism

Type of Calculator	Exam Section I Multiple Choice	Exam Section II Free Response
<ul style="list-style-type: none"> <li>▪ Allowed:               <ul style="list-style-type: none"> <li>◆ Four-function calculator</li> <li>◆ Scientific (nongraphing) calculator, but must <b>not</b> have unapproved features or capabilities (see the list of unapproved calculators and technology on page 50)</li> <li>◆ Graphing calculator</li> </ul> </li> </ul>	Allowed	Allowed

## Statistics

Type of Calculator	Exam Section I Multiple Choice	Exam Section II Free Response
<ul style="list-style-type: none"> <li>■ Allowed:                             <ul style="list-style-type: none"> <li>◆ Graphing calculator with statistical capabilities expected*</li> <li>◆ Scientific (nongraphing) calculator if the calculator has the required statistics computational capabilities described in the <a href="#">AP Statistics Course Description</a> <ul style="list-style-type: none"> <li>– Computational capabilities should include standard statistical univariate and bivariate summaries, through linear regression</li> <li>– Required capabilities may be either built in or programmed into the calculator before the exam</li> </ul> </li> <li>◆ Graphical capabilities should include common univariate and bivariate displays such as histograms, boxplots, and scatterplots</li> <li>◆ It is up to the student to determine if the calculator meets the criteria of required computational and graphical capabilities</li> </ul> </li> <li>■ Not allowed:                             <ul style="list-style-type: none"> <li>◆ <b>Enhancements other than those that improve the calculator’s computational and/or graphical functionalities are prohibited. Unacceptable enhancements include, but are not limited to, keying or scanning text or response templates into the calculator</b></li> </ul> </li> </ul>	Expected*	Expected*

\*Although scientific calculators with computational capabilities (standard statistical univariate and bivariate summaries, through linear regression) are allowed, students are expected to use a graphing calculator.

Ask AP teachers to remind students several days before the exam to:

- bring the appropriate calculator on exam day
- check the features that are required or not permitted
- check the batteries in the calculator (fresh batteries are recommended)

Teachers should refer students to [collegeboard.org/ap/calculators](http://collegeboard.org/ap/calculators) for the most current list of approved graphing calculators. Students may bring up to two calculators to exams, but they cannot share them.



**EXAM SECURITY** Since graphing calculators can be used to store data, including text, proctors should monitor that students are using their calculators appropriately. Attempts by students to use the calculator to remove exam content from the room may result in the cancellation of AP Exam scores. However, calculator memories do not need to be cleared before or after the exam.

For security reasons, some calculators require special instructions.

- Calculators with large display (characters of  $\geq 1$ " or display raised from the horizontal (tilted or hinged screen) may be visible to other students, so seat students using these calculators at the back of the testing room.
- Calculators with infrared communication capabilities are permitted. However, because data can be exchanged between these calculators if they are aligned and close together, proctors should make sure that students keep their calculators sufficiently far apart and the infrared ports are not facing each other.
- Calculators with built-in physical constants, metric conversions, and physics, chemistry, or mathematics formulas are permitted. Calculator memories do not need to be cleared before or after the exam.

- The Hewlett-Packard 48-50 Series and Casio FX-9860 graphing calculators may use memory cards designed for use with those calculators.
- The Casio FX-CG500 calculator is permitted only without the use of the stylus.

### Unacceptable calculators and technology

- Cell phones, smartphones, smartwatches, and other wearable technology
- Portable/handheld computers, tablets, laptops, electronic writing pads, pocket organizers
- Models with QWERTY (i.e., typewriter) keypads as part of the hardware or software (e.g., TI-92 Plus, Voyage 200)
- Models with pen-input/stylus capability (e.g., Palm, PDAs, Casio ClassPad)
- Models with wireless or Bluetooth capability
- Models that require an electrical outlet, “talk”\* or make noise, or have a paper tape
- Models that can access the internet
- Models that have cell phone capability or audio/video recording capability
- Models that have a camera or scanning capability
- Models with touch-screen capability that aren’t on the list of approved graphing calculators (e.g., Casio ClassPad)
- Hardware peripherals such as a stylus, keyboard, or wireless adapter with an approved calculator

\*Unless approved by the College Board SSD Office as an accommodation

### School-supplied backup calculators

It is advisable that schools have a supply of AP-approved calculators on exam day to provide:

- If a student arrives without a calculator
- If a student arrives with an unacceptable calculator
- If a calculator malfunctions during the administration

Call AP Services for Educators immediately if:

- A student is unable to use the offered calculator
- A student is unfamiliar with the operation of an offered calculator
- You run out of or don't have spare calculators and still have students who want and need them

### Calculator Release Statement

If the option of providing a calculator isn't feasible, or if a student doesn't want to use a calculator, they can take an exam without one. However, if a student chooses to take an exam without a calculator, they must hand copy, date, and sign the Calculator Release Statement that follows and indicate the name of the exam being taken. Return the release statement in the Incident Report return envelope in the exam shipment.

*It is my decision to take the AP [Biology] [Calculus] [Chemistry] [Physics] [Statistics] Exam without a calculator. I will not use the absence of a calculator as a reason to challenge my score on this exam.*

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_

Student Signature: \_\_\_\_\_ AP #: \_\_\_\_\_

Acceptable Graphing Calculators



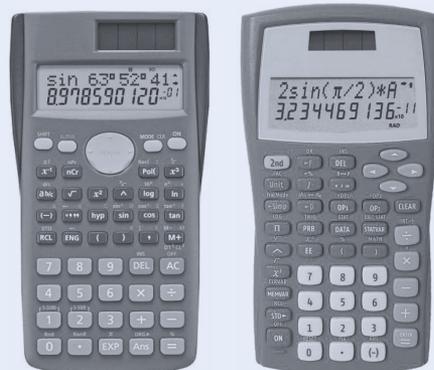
Unacceptable Model with QWERTY Keyboard



Acceptable Four-Function Calculator



Typical Scientific Calculator Models



**AP-APPROVED GRAPHING CALCULATORS**

Casio	Casio cont.	Radio Shack	Texas Instruments
FX-6000 Series	FX-CG-10*	EC-4033	TI-73
FX-6200 Series	FX-CG-20 Series*	EC-4034	TI-80
FX-6300 Series	FX-CG-50*	EC-4037	TI-81
FX-6500 Series	Graph35 Series*		TI-82*
FX-7000 Series	Graph75 Series*	<b>Sharp</b>	TI-83*
FX-7300 Series	Graph95 Series*	EL-5200	TI-83 Plus*
FX-7400 Series	Graph100 Series*	EL-9200 Series*	TI-83 Plus Silver*
FX-7500 Series	FX-CG500*†	EL-9300 Series*	TI-84 Plus*
FX-7700 Series		EL-9600 Series*†	TI-84 Plus CE*
FX-7800 Series	<b>Hewlett-Packard</b>	EL-9900 Series*	TI-84 Plus Silver*
FX-8000 Series	HP-9G		TI-84 Plus C Silver*
FX-8500 Series	HP-28 Series*	<b>Other</b>	TI-84 Plus T*
FX-8700 Series	HP-38G*	Datexx DS-883	TI-84 Plus CE-T*
FX-8800 Series	HP-39 Series*	Micronta	TI-85*
Graph25 Series	HP-40 Series*	Smart <sup>2</sup>	TI-86*
FX-9700 Series*	HP-48 Series*		TI-89*
FX-9750 Series*	HP-49 Series*		TI-89 Titanium*
FX-9860 Series*	HP-50 Series*		TI-Nspire*
CFX-9800 Series*	HP Prime*		TI-Nspire CX*
CFX-9850 Series*			TI-Nspire CAS*
CFX-9950 Series*			TI-Nspire CX CAS*
CFX-9970 Series*			TI-Nspire CM-C*
FX 1.0 Series*			TI-Nspire CM-C CAS*
Algebra FX 2.0 Series*			TI-Nspire CX-C CAS*

\* Graphing calculators with the expected built-in capabilities for AP Calculus are indicated with an asterisk. See the *AP Calculus AB and AP Calculus BC Course and Exam Description, effective Fall 2016* for details. However, students may bring any calculator on the list to the exam; any model within each series is acceptable. Only approved graphing calculators from the list are permitted for the AP Calculus Exams.

† The use of the stylus is not permitted.

This list will be updated at [collegeboard.org/ap/calculators](http://collegeboard.org/ap/calculators), as necessary, to include new approved calculators. Check this list periodically, and before the administration of the exams, to ensure that students have the most up-to-date information.

This list only includes approved graphing calculators. There is not an approved list of scientific (nongraphing) calculators.