

# Preparing Students

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- ▶ Calculator policy
- ▶ Completing exam booklets
- ▶ Where to find information about the 2017 answer sheet and preadministration sessions

## What Students Should and Should Not Bring to the Exam Room

### Bring to the Exam Room

- ▶ Several sharpened No. 2 pencils (with erasers) for completing multiple-choice answer sheets.
- ▶ Pens, with black or dark blue ink only, for completing areas on the exam booklet covers and for free-response questions in most exams.
- ▶ Their own school's code if they are testing at a school different from the one they regularly attend. Home-schooled students will be provided with their state's or country's home-school code at the time of the exam.
- ▶ A watch (in case the exam room does not have a clock that can be easily seen).
- ▶ Their Social Security number for identification purposes. This is optional. If provided, it will appear on their AP score reports.
- ▶ Up to two calculators with the necessary capabilities if they are taking an AP Biology, Calculus, Chemistry, Physics, or Statistics Exam. Instruct students to visit [apstudent.collegeboard.org/apcourse](http://apstudent.collegeboard.org/apcourse) and click on the link for their course for the specific calculator policy.
- ▶ A ruler or straightedge if they are taking an AP Physics Exam. (Protractors are not allowed.)
- ▶ A government-issued or school-issued photo ID and their AP Student Pack if they do not attend the school where they are taking the exam.
- ▶ Their College Board SSD Accommodations Letter if they are taking an exam with approved testing accommodations.

### Do NOT Bring to the Exam Room

- ▶ Electronic equipment (cell phone, smartphone, smartwatch or other wearable technology, laptop, tablet computer, etc.), portable listening or recording devices (MP3 player, iPod, etc.), cameras or other photographic equipment, devices that can access the internet, or any other electronic or communication devices.

**Note:** School-owned handheld digital recording devices are allowed **only** for the AP French, German, Italian, and Spanish Language and Culture Exams and the AP Music Theory Exam. School-owned and controlled iPad tablets are allowed **only** if a school decides to use the new Digital Audio Capture (DAC) app for AP Music Theory sight singing.

- ▶ Books, compasses, mechanical pencils, correction fluid, dictionaries, highlighters,\* notes, or colored pencils.\*
- ▶ Rulers, straightedges, and protractors (except as previously noted).\*
- ▶ Scratch paper (notes can be made on portions of the exam booklets or, for Chinese Language and Culture, and Japanese Language and Culture, on scratch paper provided by the proctor).
- ▶ Computers\* or calculators (except as previously noted).
- ▶ Reference guides, keyboard maps, or other typing instructions.
- ▶ Watches that beep or have an alarm.
- ▶ Food or drink.\*
- ▶ Clothing with subject-related information.
- ▶ Ear plugs.

\*Unless this has been preapproved as an accommodation by the College Board Services for Students with Disabilities office prior to the exam date.

## Calculator Policy

A graphing calculator is required if students are taking the AP Calculus AB or Calculus BC Exam. A graphing calculator with statistical capabilities is expected if they are taking the AP Statistics Exam. A four-function, scientific, or graphing calculator is permitted for both Section I and Section II of the Physics 1, Physics 2, and both Physics C Exams. A four-function, scientific, or graphing calculator is permitted for Section II only of the AP Chemistry Exam. A simple four-function (with square root) calculator is allowed for the AP Biology Exam. Students may bring up to two calculators to these exams, but they may not share calculators. For Calculus, Chemistry, Physics, or Statistics exams, if a student has a graphing calculator, it must be on the approved calculator list. See the individual subject restrictions on the next few pages for more information on which calculators are allowed. **Calculators are not allowed for any other AP Exams, including Macroeconomics, Microeconomics, and Environmental Science.**

## ONLINE SCORE REPORTS FOR STUDENTS

### Avoiding Delays in Accessing and Reporting Scores

Scores will be available to students online at [apscore.org](http://apscore.org) in early July. In order to access and send their scores as well as avoid any score reporting delays, students must:

- ▶ Create a College Board account (students may already have an account if they registered for the SAT or participated in other College Board programs).
- ▶ Use the email address that they provided on their AP answer sheet when creating their account.
- ▶ Provide their AP number or student identifier (if they entered one on their answer sheet) when creating their account.
- ▶ Enter identifying information (particularly name, date of birth, sex, and mailing address) carefully and consistently on their answer sheets.

Mismatched email addresses or incomplete/inconsistent information on students' answer sheets can delay access to scores.

Ask the AP teachers to remind students several days before the exam to bring the appropriate calculator on exam day, to remind them of the features that are required or are not permitted, and to check the batteries (fresh batteries are recommended). Teachers should refer students to the AP Students site for the most current list of approved graphing calculators ([www.collegeboard.org/ap/calculators](http://www.collegeboard.org/ap/calculators)) for AP Calculus Exams. The specific makes and models of graphing calculators listed there can also be used on the AP Statistics, Chemistry, Physics 1, Physics 2, and both Physics C Exams. However, nongraphing scientific calculators are prohibited for the AP Calculus Exams. Scientific and graphing calculators are prohibited for the AP Biology Exam.

The following list of unacceptable technology may not be used on any of the exams:

### NOT APPROVED:

Smartphones, smartwatches, or other wearable technology, portable/handheld computers, tablets, laptops, electronic writing pads, pocket organizers; models with QWERTY (i.e., typewriter) keypads as part of 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 with paper tapes; models that “talk” or make noise; models that require an electrical outlet; models that can access the internet; models that have cell phone capability or audio/video recording capability; models that have a digital audio/video player; models that have a camera or scanning capability. Some models with touch-screen capability are not permitted (e.g., Casio ClassPad). In addition, the use of hardware peripherals such as a stylus, keyboard, or wireless adapter with an approved calculator is not permitted.

Anyone with Hewlett-Packard 48–50 Series and Casio FX-9860 graphing calculators may use cards designed for use with those calculators. The new Casio FX-CG500 calculator is permitted for use only without the use of the stylus. If a student has a calculator with a large display (characters one inch high or more) or a display raised from the horizontal (a tilted or hinged screen) that may be visible to other examinees, that student should be seated 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 very close together, proctors should make sure that students keep their calculators sufficiently far apart during the exam and that calculators’ infrared ports are not facing each other.



**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 questions and/or answers from the room may result in the cancellation of AP Exam scores.

**It is advisable that schools have a supply of appropriate calculators on hand. If a student does not have a calculator, or arrives with an unacceptable calculator, you may wish to provide a substitute.** If a student’s calculator malfunctions during the administration, you can offer a calculator from your

supply. If the student is unable to use the offered calculator, or is unfamiliar with its operation, call AP Services for Educators immediately.

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. If you have to supply calculators to students who either have no calculator or have an unacceptable calculator, and you run out of spare calculators and still have students who need and want them, isolate the students needing calculators in an area where they cannot communicate with the students taking the exam. When the students with calculators have finished the exam, reclaim your calculators. For reasons of security, clear the calculator memories of all programs and data, and give the calculators to the waiting students. Test these students immediately following the regular administration.

### Calculator Release Statement

If the option of providing a calculator is not feasible, or if a student does not want to use a calculator, he or she can take an exam without one. However, if a student chooses to take an exam without a calculator, he or she 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 #: \_\_\_\_\_

### Biology

A four-function calculator (with square root) is permitted on both the multiple-choice and free-response sections of the AP Biology Exam since both sections contain questions that require data manipulation. No other types of calculators, including scientific and graphing calculators, are permitted for use on the exam. Four-function calculators typically have a one-line display and a simple layout of numeric keys (e.g., 0–9), arithmetic operation keys (e.g., +, −, ×, and ÷), and a limited number of special-use keys (e.g., %, +/−, C, and AC). Simple memory buttons like MC, M+, M−, and MR may also be included on a four-function calculator. Scientific calculators have a more complicated, multi-row layout that includes various special-use keys, including ones for trigonometric and logarithmic functions such as SIN, COS, TAN, TRIG, LOG, and LN. In contrast to scientific calculators, four-function calculators **do not** include trigonometric and logarithmic functions, statistical capabilities, or graphing capabilities. See the pictures on page 48 for sample images of four-function, scientific, and graphing calculators. **Students may bring up to two four-function calculators (with square root) to the exam.**

## Calculus

Both the multiple-choice and free-response sections of the AP Calculus AB and Calculus BC Exams contain questions that require a graphing calculator and questions that do not allow the use of a graphing calculator. A graphing calculator appropriate for use on the exams is expected to have the built-in capability to:

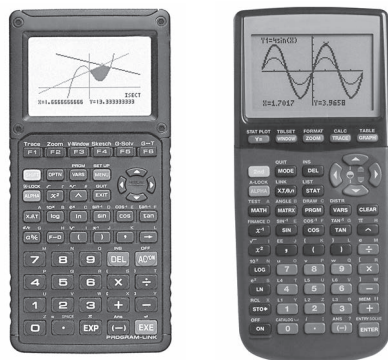
- ▶ Plot the graph of a function within an arbitrary viewing window
- ▶ Find the zeros of functions (solve equations numerically)
- ▶ Numerically calculate the derivative of a function
- ▶ Numerically calculate the value of a definite integral

If these capabilities are not built into a student's calculator, the student should enter appropriate programs into the calculator prior to the exam. Students may bring up to two graphing calculators from the approved list to the exam. No nongraphing/other types of calculators are permitted, even as a second calculator. Calculator memories do not need to be cleared before or after the AP Calculus Exam administration.

## Chemistry

Calculators are permitted **only** for the entire free-response section of the AP Chemistry Exam. Four-function calculators may be used but are not recommended. Most types of scientific (nongraphing) calculators may be used, provided that they don't have unapproved features or capabilities. The graphing calculators listed on page 49 may also be used. Calculator memories do not need to be cleared before or after the exam.

### Acceptable Graphing Calculators



### Acceptable Four-Function Calculator



## Physics

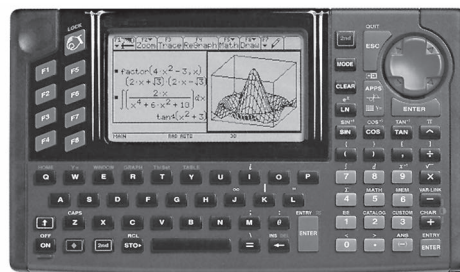
Calculators are permitted on **both** the multiple-choice and free-response sections of the AP Physics 1, Physics 2, and both Physics C Exams. Four-function calculators may be used. Most types of scientific (nongraphing) calculators may be used, provided that they don't have unapproved features or capabilities. The graphing calculators listed on page 49 may also be used. Calculator memories do not need to be cleared before or after the exam.

## Statistics

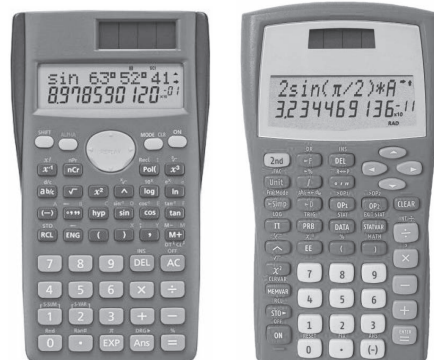
**Each student is expected to bring a graphing calculator with statistical capabilities to the AP Statistics Exam.**

A student can bring a nongraphing scientific calculator instead, as long as it has the required computational capabilities. The computational capabilities should include standard statistical univariate and bivariate summaries, through linear regression. The required capabilities may be either built into the calculator or programmed into the calculator prior to the exam. Graphical capabilities should include common univariate and bivariate displays such as histograms, boxplots, and scatterplots. It is up to the student to determine if the calculator meets the criteria of required computational and graphical capabilities. **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.** Calculator memories do not need to be cleared before or after the exam.

### Unacceptable Model with QWERTY Keyboard



### Typical Scientific Calculator Models



## AP-APPROVED GRAPHING CALCULATORS

Casio	Casio <i>cont.</i>	Radio Shack	Texas Instruments
FX-6000 Series	FX 1.0 Series*	EC-4033	TI-73
FX-6200 Series	Algebra FX 2.0 Series*	EC-4034	TI-80
FX-6300 Series	FX-CG-10 (PRIZM)*	EC-4037	TI-81
FX-6500 Series	FX-CG-20 Series*		TI-82*
FX-7000 Series	Graph35 Series*	<b>Sharp</b>	TI-83*
FX-7300 Series	Graph75 Series*	EL-5200	TI-83 Plus*
FX-7400 Series	Graph95 Series*	EL-9200 Series*	TI-83 Plus Silver*
FX-7500 Series	Graph100 Series*	EL-9300 Series*	TI-84 Plus*
FX-7700 Series	FX-CG500*†	EL-9600 Series*†	TI-84 Plus CE*
FX-7800 Series		EL-9900 Series*	TI-84 Plus Silver*
FX-8000 Series	<b>Hewlett-Packard</b>		TI-84 Plus C Silver*
FX-8500 Series	HP-9G	<b>Other</b>	TI-85*
FX-8700 Series	HP-28 Series*	Datexx DS-883	TI-86*
FX-8800 Series	HP-38G*	Micronta	TI-89*
Graph25 Series	HP-39 Series*	Smart <sup>2</sup>	TI-89 Titanium*
FX-9700 Series*	HP-40 Series*		TI-Nspire*
FX-9750 Series*	HP-48 Series*		TI-Nspire CX*
FX-9860 Series*	HP-49 Series*		TI-Nspire CAS*
CFX-9800 Series*	HP-50 Series*		TI-Nspire CX CAS*
CFX-9850 Series*	HP Prime*		TI-Nspire CM-C*
CFX-9950 Series*			TI-Nspire CM-C CAS*
CFX-9970 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 2016-2017* 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 [www.collegeboard.org/ap/calculators](http://www.collegeboard.org/ap/calculators), as necessary, to include new approved calculators. Check this list periodically, and prior to 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.

## Completing Responses in the Appropriate Exam Booklets

All answers for the multiple-choice sections of the exams must be indicated on the students' answer sheets by filling in the appropriate circles. Answers written in the multiple-choice booklets will not be scored. Total scores on the multiple-choice section are based only on the number of questions answered correctly. Points are not deducted for incorrect answers and no points will be awarded for unanswered questions.

Note that for the AP European History, U.S. History, and World History Exams, the Section I short-answer response questions are printed in the multiple-choice booklet; however, students must write their responses in the separate response booklet.

Answers for the free-response section must be written in the Section II exam booklets, in the spaces provided for responses. Directions on the exam booklet will indicate where notes and scratch work may be written (e.g., on certain pages containing questions or reference material, in areas designated for that purpose, or in the additional orange Section II booklets for some exams); however, these notes will not be scored. All responses for the free-response section must be written in English with the exception of the AP Chinese, French, German, Italian, Japanese, and Spanish Language and Culture and Spanish Literature and Culture Exams. In the case of the AP Latin Exam, students must write their answers in English and cite the Latin passages as required. Any responses not adhering to this policy will receive a score of 0 or will not be scored.