

Use of calculators in Examinations 2013 - Update

Note: This document applies to examinations in 2013. As from May 2014, statistical tables will not be allowed in mathematics examinations, rather candidates should be using the statistical feature on their GDC. Thus some of the calculators currently recommended or approved may not have these features, and will no longer be suitable for use in examinations.

Calculator List

This document should be read in conjunction with the calculator section of the Handbook of Procedures and other information available on the Online Curriculum Centre. It provides examples of calculators that are recommended for use in IB examinations, calculators which are approved and those which are prohibited. This list will be updated as and when necessary. It should be noted that these are not definitive lists, and teachers should check other models against the information in the Handbook of Procedures. Schools should also ensure that all calculators used in examinations comply with the regulations.

Recommended models

The following models meet the minimum requirements for mathematics subjects and have updated and time-saving functionalities not found on other models.

| | | |
|--------------------------|---|-----------------------------|
| Texas Instruments | TI 84 Plus silver edition | TI 83 Plus silver edition |
| | TI 84 Plus | TI 83 Plus |
| | TI Nspire (non-CAS), with 84 faceplate | TI 84 Plus C silver edition |
| | TI Nspire (non-CAS) versions 1.3 or higher, in “Press to Test” mode, with the correct features blocked (see list below) | |
| Casio | FX 9750 G Plus or GII | Graph 35 Plus |
| | CFX 9850 Plus | Graph 65 Plus |
| | FX 9860 series | Graph 75 |
| | CFX 9950 Plus | Graph 85 series |
| | CG series/FXCG10_20 | FX 1.0 Plus |

TI Nspire “Press to Test” configurations.

Note: Candidates must upgrade their Nspire to the latest operating system to use the “Press to Test” properly. Nspires which have not been updated and put into the correct “Press to Test” mode are not allowed in the examinations. Further details about “Press to Test” can be found at the end of this document and on the TI website. Older versions may need two upgrades to enable the correct “Press to Test” mode.

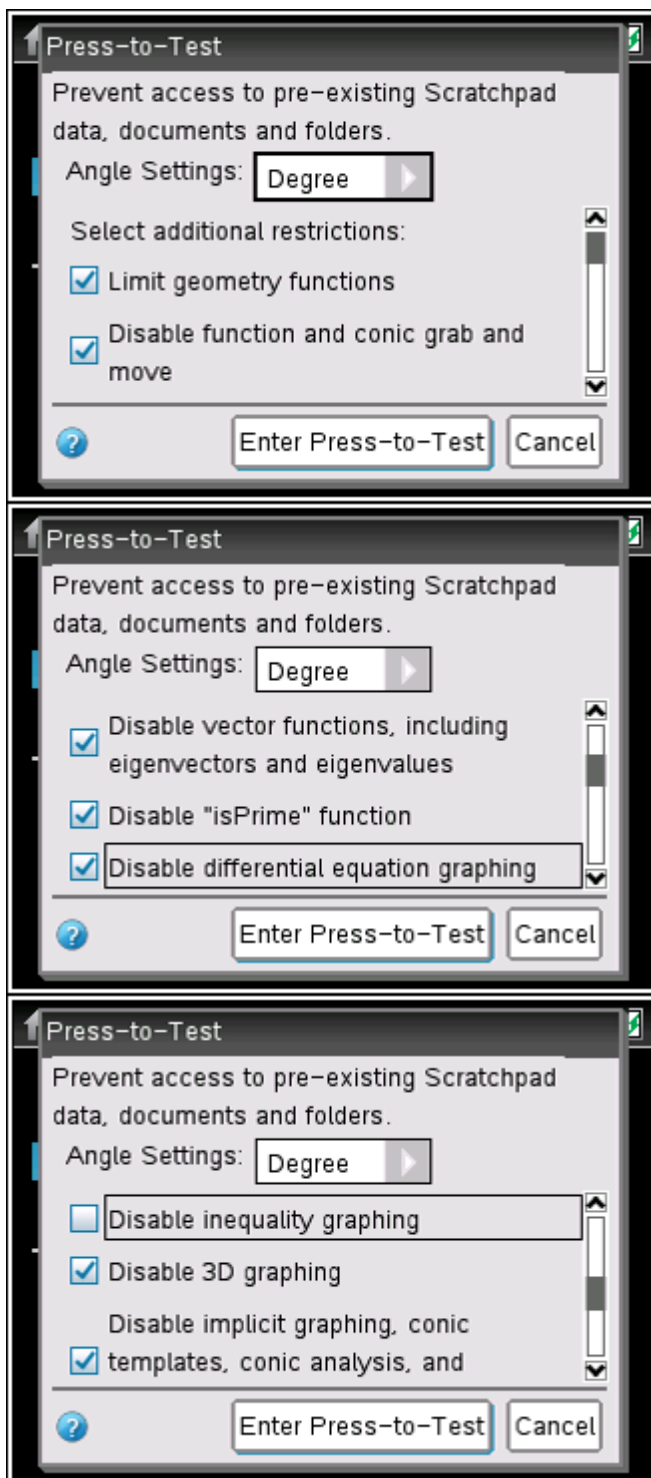
The following options in “Press to Test” mode must be **ticked** and therefore **blocked**.

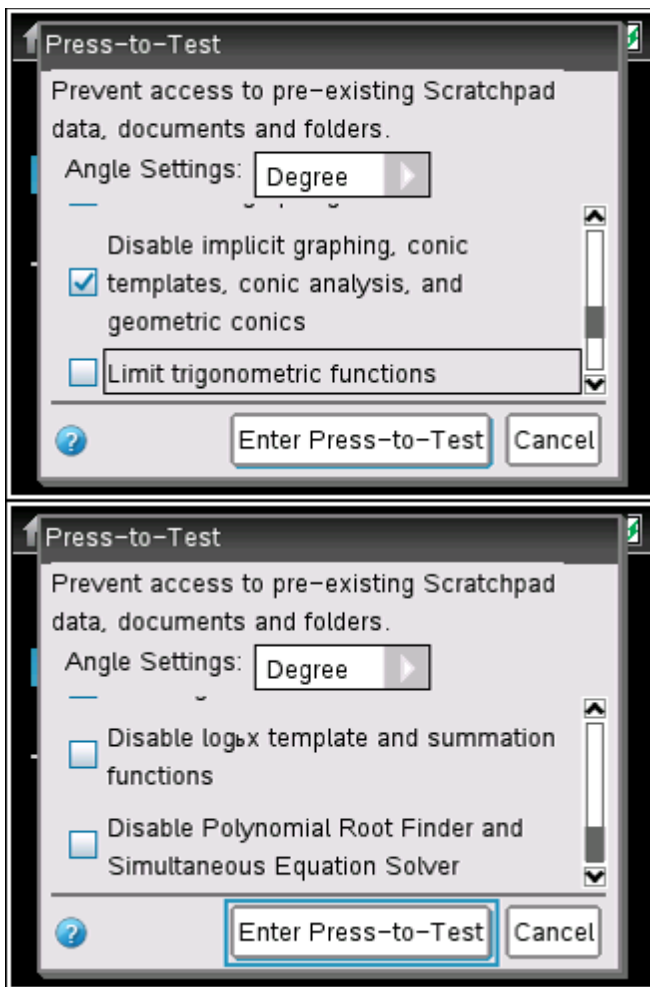
- Limit geometry functions
- Disable function and conic grab and move
- Disable vector functions, including eigenvectors and eigenvalues
- Disable “isPrime” function
- Disable differential equation graphing
- Disable 3D graphing
- Disable implicit graphing, conic templates, conic analysis, and geometric conics

The following options in “Press to Test” mode must be **unticked** and therefore **allowed**.

- Disable inequality graphing
- Limit trigonometric functions
- Disable $\log_b x$ template and summation functions
- Disable Polynomial Root Finder and Simultaneous Equation Solver

The following screen shots show how to put the Nspire into the correct “Press to Test” mode.





Approved calculators

The following models do not meet the minimum requirements for mathematics subjects, as they do not have all the required functionality. They are allowed for use in examinations, but are not recommended for mathematics examinations.

| | |
|--------------------------|--|
| Texas Instruments | TI 83 / 86 / 85 / 82 |
| Casio | 9800 or 9700 series without G-Plus or GII, FX 7400 GII |
| Sharp | EL 9900, EL 9650, EL 9600 |

Prohibited calculators

The following models are not allowed in examinations under any circumstances.

| | | |
|--------------------------|--|------------------------------|
| Texas Instruments | TI Voyage 200 (all versions) | TI 89 (all versions) |
| | TI 92 (all versions) | TI Nspire CAS (all versions) |
| | TI Nspire (non-CAS) version 1.1 or version 1.2 | |
| Casio | Classpad 300 | Graph 100 |
| | FX 2.0 (all versions) | FX 9970 (all versions) |
| Hewlett Packard | HP 38-95 (all versions) | |



Extract from the Handbook of Procedures

| Subjects | Calculators |
|--|--|
| Business and management Environmental systems and societies | A four-function calculator, scientific calculator or GDC is required for all examinations. |
| Economics HL Paper 3 | While all questions requiring a calculator can be answered fully using a four function (plus, minus, multiply, divide) calculator, graphic display calculators (GDCs) are allowed during the examination. The graphing functions on these calculators may assist students and it is therefore recommended that all students are familiar with the use of GDCs. |
| Biology Chemistry Design technology Physics | <p>Calculators are not allowed on paper 1.</p> <p>On paper 2 and paper 3, a calculator with the following minimum functionalities is required (a GDC is recommended):</p> <ul style="list-style-type: none"> • decimal logarithms • values of x^y and $x^{1/y}$ • value of π (pi) • trigonometric functions • inverse trigonometric functions • natural logarithms • values of e^x • scientific notation |
| Mathematical studies SL Further mathematics SL | <p>A GDC with the following minimum functionalities is required on all papers:</p> <ul style="list-style-type: none"> • draw graphs with any viewing window • solve equations numerically • add and multiply and find inverse matrices • find a numerical derivative at a point • find a numerical definite integral • find p values. <p>Examiners will set questions assuming that all candidates have a GDC with the minimum functionalities listed here. Candidates using only four-function or scientific calculators, or using a less able GDC, will be at a disadvantage.</p> |



| Subjects | Calculators |
|----------------------------------|---|
| Mathematics SL Mathematics HL | Calculators are not allowed for paper 1. A GDC with the following minimum functionalities is required on all other papers: <ul style="list-style-type: none"> • draw graphs with any viewing window • solve equations numerically • add and multiply and find inverse matrices • find a numerical derivative at a point • find a numerical definite integral • find p values (not required for mathematics SL). <p>Examiners will set questions assuming that all candidates have a GDC with the minimum functionalities listed here. Candidates using only four-function or scientific calculators, or using a less able GDC, will be at a disadvantage.</p> |

For examinations May 2013 onwards.

A. TI-83/TI-84 (Plus and silver edition) models

1. Reset all RAM memory.
2. Reset Archive Vars (if applicable).
2. Remove all Flash (ROM) applications (Apps) except those listed below.

| App Menu Name | Description |
|---------------|---|
| CBL/CBR | Connectivity/set-up of CBL™ data collection system (Other connectivity Apps for USB-type probes are also acceptable and do not need to be removed.) |
| Chinese | Chinese version of Catalog Help |
| CtlgHelp | Catalog Help provides easy access to calculator function information |
| Dansk | Danish language localizer—this App will translate all prompts, error messages and most functions into Danish |
| Deutsch | Language localizer—this App will translate all prompts, error messages and most functions into German |
| EasyData | Connectivity App for USB-type data collection probes |
| Español | Language localizer—this App will translate all prompts, error messages and most functions into Spanish |
| Finance | Finance operations—part of the Operating System |
| Français | Language localizer—this App will translate all prompts, error messages and most functions into French |
| Italiano | Language localizer—this App will translate all prompts, error messages and most functions into Italian |
| Magyar | Language localizer—this App will translate all prompts, error messages and most functions into Hungarian |



| | |
|----------|---|
| Nederlan | Language localizer—this App will translate all prompts, error messages and most functions into Dutch |
| Norsk | Language localizer—this App will translate all prompts, error messages and most functions into Norwegian |
| Polski | Language localizer—this App will translate all prompts, error messages and most functions into Polish |
| PolySmlt | Combination of two programs, one that finds polynomial roots and one that finds solutions to systems of equations. This version is an older version than PolySmlt2. |
| PlySmlt2 | Combination of two programs, one that finds polynomial roots and one that finds solutions to systems of equations |
| Portug | Language localizer—this App will translate all prompts, error messages and most functions into Portuguese |
| Suomi | Language localizer—this App will translate all prompts, error messages and most functions into Finnish |
| Svenska | Language localizer—this App will translate all prompts, error messages and most functions into Swedish |

B. TI-83 (non-plus)/ TI-82/TI-85/TI-86 models

1. Reset all RAM memory.
2. After a full memory reset, install the following RAM programs

Solver

Polynomial solver

Simultaneous Equation Solver

C. TI Nspire vs 1.3 and above

All versions must be in “Press to Test mode” with the correct features blocked (see above).

D. All other calculators.

Reset (TI)/initialize (Casio) all memory.

