

Use of calculators in examinations 2015

Note: From May 2014, statistical tables are not allowed in mathematics examinations, rather candidates should be using the statistical features on their GDC.

Calculator List

This document should be read in conjunction with the calculator section of “The conduct of IB Diploma Programme examinations” document and other information available on the Online Curriculum Centre. It provides examples of calculators which are recommended for use in IB examinations 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 conduct of IB Diploma Programme examinations” document. Schools should also ensure that all calculators used in examinations comply with the regulations.

Recommended calculators

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 84 Plus CE
	TI 84 Plus	TI 84 Plus CE-T
	TI 84 Plus C silver edition	TI 83 Plus silver edition
	TI Nspire (non-CAS), with 84 faceplate	TI 83 Plus
	TI Nspire (non-CAS) versions 1.3 or higher updated to the latest operating system 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 1.0 Plus	Graph 85 series
	CFX 9950 Plus	
	FX 9860 series – with operating system 02.02 (02.03 for the FX 9860 GII S) or below**	
	Graph 75 – with operating system 02.02 or below**	
CG series - FXCG10/20 – with operating system 01.04 or below**		
Hewlett Packard	HP Prime updated to the latest operating system in “Exam Mode”, with the correct features blocked (see list below)	

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 or any other version not updated to the latest operating system	
Casio	Classpad 300	Graph 100
	FX 2.0 (all versions)	FX 9970 (all versions)
	FX 9860 series – with operating system 02.04 or above**	
	Graph 75 – with operating system 02.04 or above**	
CG series - FXCG10/20 – with operating system 02.00 or above**		
Hewlett Packard	HP 38-95 (all versions)	

Notes:

- Any devices with unrestricted/candidate accessible WiFi functionality are not permitted.
- Other calculators which have features that do not appear on any of the recommended models are not allowed.
- Candidates may not use or store data/notes, programs or flash (ROM) applications (Apps) in their calculators that may assist them in an examination by removing the need to recall facts or formulae.

****** Casio have updated the operating system on a selection of their GDCs. The new operating system contains functions that we cannot allow in IB examinations. If a calculator has a prohibited operating system installed, please contact the Casio Service Centre in your region/country. Casio have provided procedures to all their service centres to allow installation of the older operating system on to the GDCs free of charge for schools and students.

To check the operating system version on one of these models, follow the instructions below:

- Step 1. Go to Menu and select System
- Step 2. Press F4: Version
- Step 3. Check the Operating System Version.

FX-9860GII / FX-9860GII SD / FX-9860G AU Plus / Graph 75

Correct OS version (or below)

```
Version
OS
02.02.0201
Add-In Application
Message ↓
NAME
```

Incorrect OS Version (or above)

```
Version
OS
02.04.0201
Add-In Application
Message ↓
NAME
```

FX-9860GII S

Correct OS version (or below)

```
Version
OS
02.03.5300
Add-In Application
Message ↓
NAME
```

Incorrect OS Version (or above)

```
Version
OS
02.04.0201
Add-In Application
Message ↓
NAME
```

FX-CG10/20

Correct OS version (or below)

```
Version
OS
01.04.0200
Add-In Application
Message
```

Incorrect OS Version (or above)

```
Version
OS
02.00.0200
Add-In Application
Message
```

Extract from “The conduct of IB Diploma Programme examinations” document

Calculators of the types indicated as suitable are allowed only in the subjects listed in the table below.

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 Sports, exercise and health science	Calculators are not allowed on paper 1. On paper 2 and paper 3, a calculator with the following minimum functionalities is required (a GDC is recommended): <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

Subjects	Calculators
Mathematical studies SL Further mathematics HL	<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 • find a numerical derivative at a point • find a numerical definite integral • financial package • add and multiply and find inverse matrices (further mathematics HL only) • find statistical values including: <ul style="list-style-type: none"> - normal distribution - binomial distribution - Poisson distribution - t-distribution - binomial coefficient $\binom{n}{r}$, nPr - 1 and 2 var stats - chi squared values (including 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>
Mathematics SL Mathematics HL	<p>Calculators are not allowed for paper 1.</p> <p>A GDC with the following minimum functionalities is required on all other papers:</p> <ul style="list-style-type: none"> • draw graphs with any viewing window • solve equations numerically • find a numerical derivative at a point • find a numerical definite integral • financial package • find statistical values including: <ul style="list-style-type: none"> - normal distribution - binomial distribution - Poisson distribution - t-distribution - binomial coefficient $\binom{n}{r}$, nPr - 1 and 2 var stats - chi squared values (including 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>

Necessary actions with recommended calculators

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. Nspires must be put into “Press to Test” mode immediately before the examination. If done earlier, a candidate must not have access to the calculator between the time it is put into “Press to Test” mode and the examination. Further details about “Press to Test” can be found on the TI website. Older versions may need two upgrades to enable the correct “Press to Test” mode.

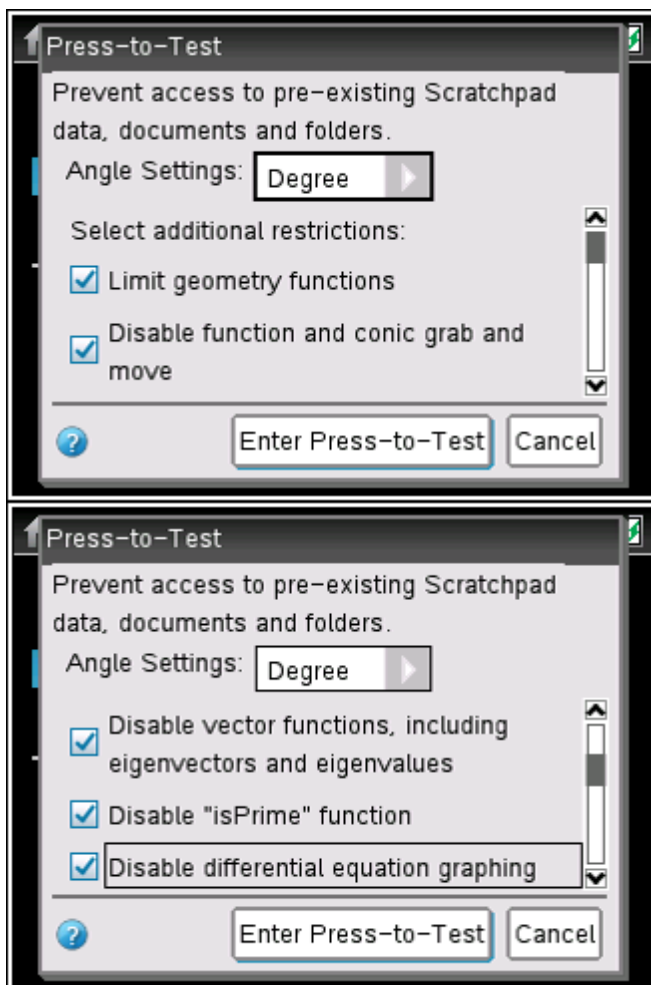
The following options in “Press to Test” mode must be **ticked** and therefore **blocked**.

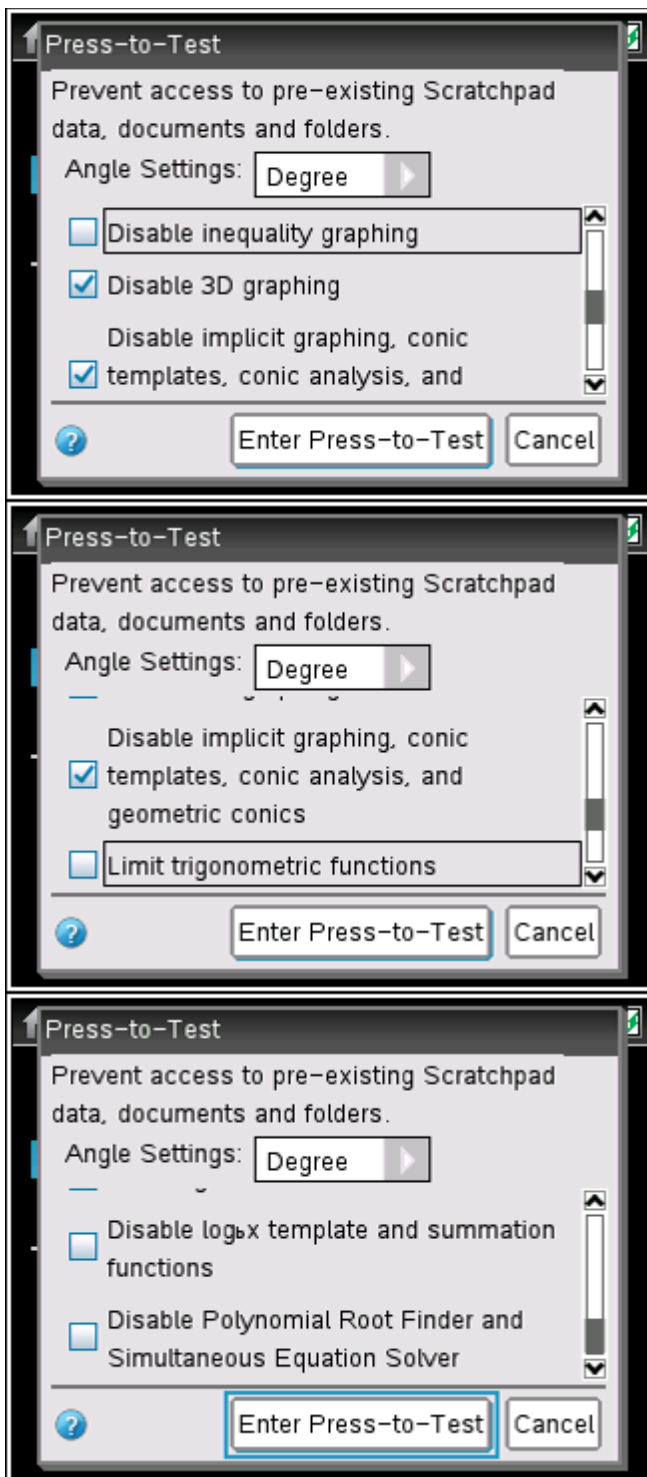
- Limit geometry functions
- Disable function and conic grab and move
- Disable vector functions, including eigenvectors and eigenvalues
- Disable “isPrime” function
- Disable differential equation graphing
- Disable 3D graphing
- Disable implicit graphing, conic templates, conic analysis, and geometric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





Note: When put in “Press to Test”, the angle setting can be set to “Degree” or “Radian” depending on candidate preference.

HP Prime “Exam Mode” configurations

Note: Candidates must upgrade their Prime to the latest operating system to use the “Exam Mode” properly. Primes which have not been updated and put into the correct “Exam Mode” are not allowed in the examinations. Primes must be put into “Exam Mode” immediately before the examination. If done earlier, a candidate must not have access to the calculator between the time it is put into “Exam Mode” and the examination. “Timeout” must be set for at least the duration of the examination. Further details about “Exam Mode” can be found on the HP website.

The following options in “Exam Mode” mode must be **ticked**.

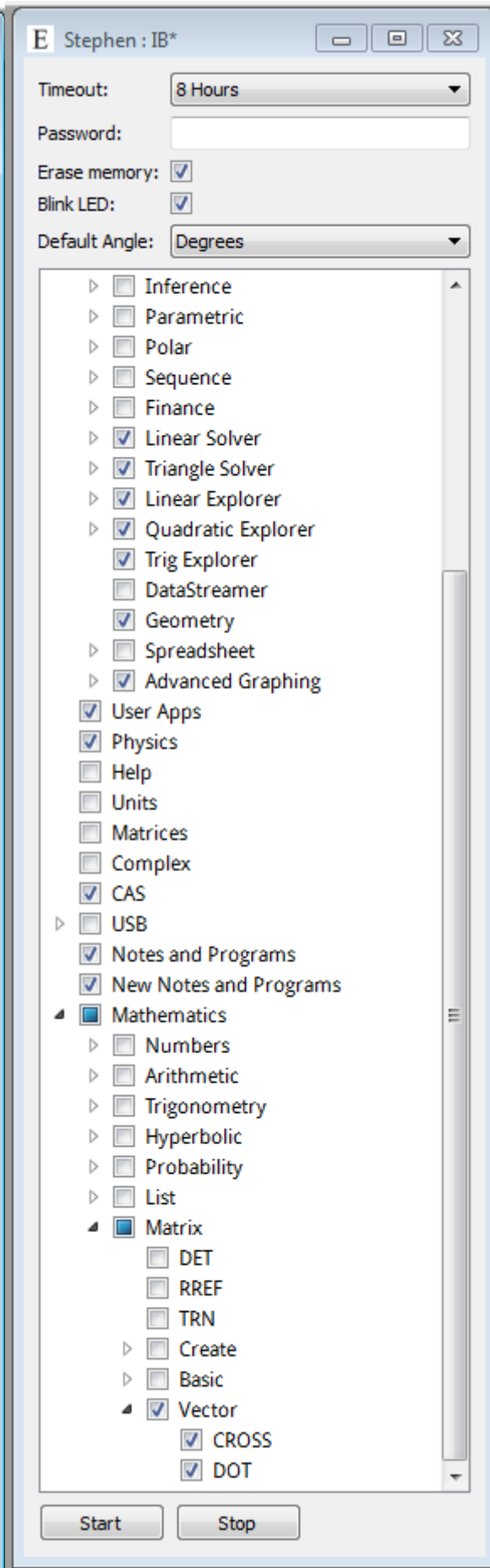
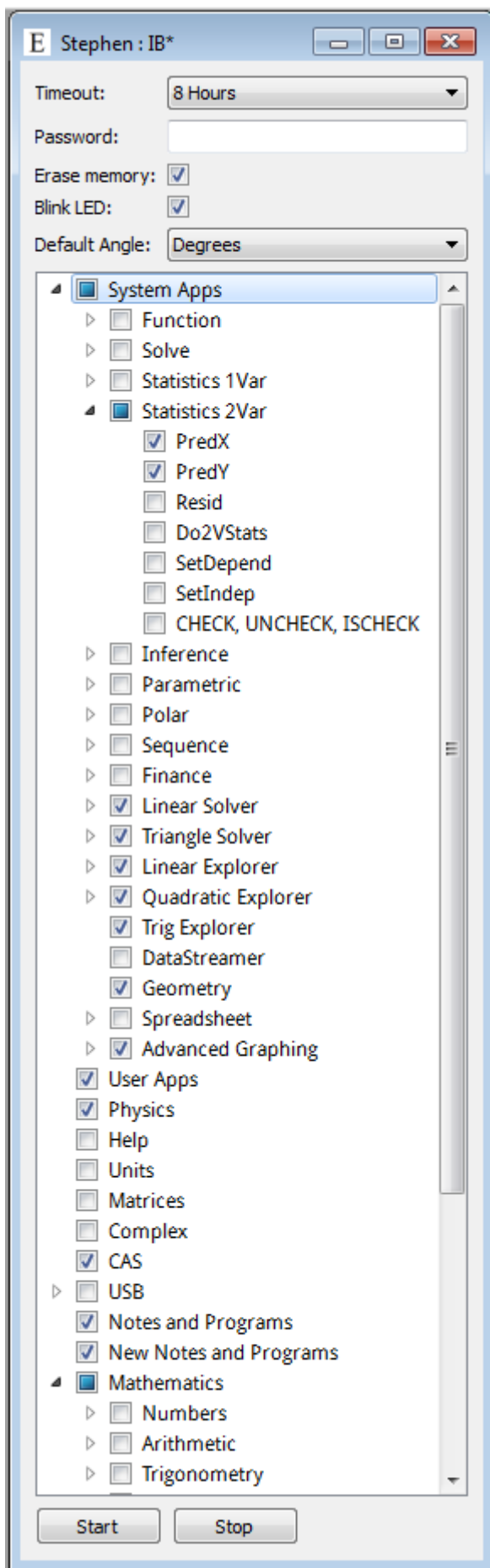
- Erase memory:
- Blink LED:

The following options in “Exam Mode” mode must be **ticked** and therefore **blocked**.

- PredX
- PredY
- Linear Solver
- Triangle Solver
- Linear Explorer
- Quadratic Explorer
- Trig Explorer
- Geometry
- Advanced Graphing
- User Apps
- Physics
- CAS
- Notes and Programs
- New Notes and Programs
- Vector
 - CROSS
 - DOT

Note: When put in “Exam Mode”, the default angle setting can be set to “Degrees” or “Radians” depending on candidate preference.

The following screen shots show how to put the Prime into the correct “Exam Mode”.



TI 83 / TI 84 recommended calculators

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

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

All Casio calculators

Initialize/reset **all** memory (including deleting the default “Add-ins” on the FXCG10/20).