Use of calculators in IB DP examinations 2022 – version 1.0

This document should be read in conjunction with the "Conduct of examinations booklet 2022" and the "Calculators guidance for examinations booklet 2022"; both are available on the Programme Resource Centre.

We provide **examples** of calculators which are permitted 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 exhaustive** nor definitive lists and teachers should check other models are within policy.

A calculator will **not** be permitted for IB DP examinations if:

- it does not meet the minimum requirements for calculators for that subject;
- it includes functionality that is unique to the **prohibited calculators** listed in this document, most predominately CAS functions;
- it includes additional elements, for example third-party applications or candidate generated notes, which are not removed (via a reset) or blocked (via an examination mode).

Schools should ensure that all calculators used in examinations comply with the regulations.

Examples of permitted calculators*

Texas Instruments	TI 84 Plus – all models		TI-83 Plus	
	TI-Nspire (non-CAS models) • TI-Nspire CX II / CX II-T (OS version 5.4 or higher) • TI-Nspire CX (OS version 4.5.5)			All TI-Nspire models must be updated to the latest Operating System (OS) as indicated. All TI-Nspire models must be placed in "Press-to-Test" mode with the correct features blocked (see list below).
	TI-Nspire (**selected** CAS models) with CAS mode disabled • TI-Nspire CX II CAS (OS version 5.4 or higher) • TI-Nspire CX II-T CAS (OS version 5.4 or higher) • TI-Nspire CX II-C CAS (OS version 5.4 or higher)			
NumWorks	NumWorks calculator (OS version 18.1.0 or higher) with IB exam mode activated			
Hewlett Packard	HP Prime* updated to the latest firmware in "Exam Mode", with the correct features blocked (see list below)			
Casio	FX-9860GII / FX-9860GII SD / FX-9860G AU PLUS updated to the latest operating system for IB examinations in "Examination Mode (for IB)"			
	FX-9750GIII / FX-9860GIII / Graph 35+ EII updated to the latest operating system for IB examinations in "Examination Mode (for IB)"			
	FX-CG50 / FX-CG50AU / FX-CG20 / Graph 90+E updated to the latest operating system for IB examinations in "Examination Mode (for IB)"			

See "Necessary actions with permitted calculators" below for guidance on ensuring these devices meet requirements.

*The HP Prime calculator is NOT permitted for use in *Mathematics: applications and interpretation* Higher Level, due to not meeting the minimum calculator requirements for topic AHL 4.12 in that subject.

Prohibited calculators

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

Texas Instruments	TI Voyage 200 (all versions)	TI 89 (all versions)
	Older CAS models: • TI-Nspire CX CAS • TI-Nspire CAS	
	TI-Nspire models that are **not** updated to the latest operating system	
Hewlett Packard	HP 38-95 (all versions)	
Casio	Classpad (all versions) / FX CG500	Graph 100
	FX 2.0 (all versions)	FX 9970 (all versions)
	Devices with an "Examination Mode" that are **not** updated to the latest operating system	

Notes:

- Any devices with unrestricted/candidate accessible WiFi functionality are not permitted.

- Other calculators which have advantageous features that do not appear on any of the permitted models **and/or** have functionality that is exclusive to the prohibited calculators (and not blocked during the examination) 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.

Necessary actions with permitted calculators

Casio

FX-CG50 / FX-CG20 / FX 9860GIII / FX 9750GIII / FX 9860GII / FX 9860GII SD / FX 9860G AU PLUS / Graph 35+ EII / Graph 90+E *(and some older iterations of these devices)*

Ensure, via the Casio website, that your device has the latest operating system.

https://edu.casio.com/download_service/download/ib/

The "Examination Mode (for IB)" functionality must be engaged immediately before the examination and continue for the duration of 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.

Please refer to the manual on how to engage this mode. If your device has multiple examination modes, ensure the "for IB" mode is implemented.

All recommended Casio calculators

Initialize/reset **all** memory.

NumWorks – IB exam mode

Navigate to the settings menu on the device and change the country to "International". Returning to the settings menu, choose "Test mode", then "Exam mode" and finally "Activate IB exam mode".
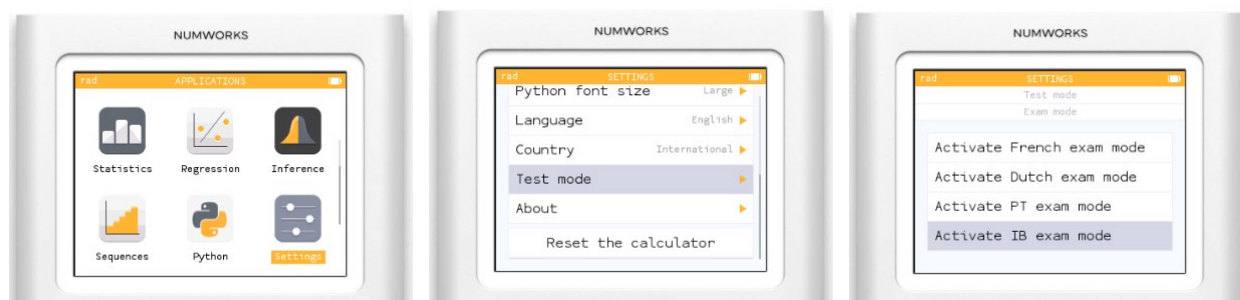
The IB exam mode must be engaged immediately before the examination and continue for the duration of the examination. If done earlier, a candidate must not have access to the calculator between the time it is put into "IB exam mode" and the examination.

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HP Prime "Exam Mode" configurations

Note: Candidates must upgrade their Prime to the latest firmware 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. 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:

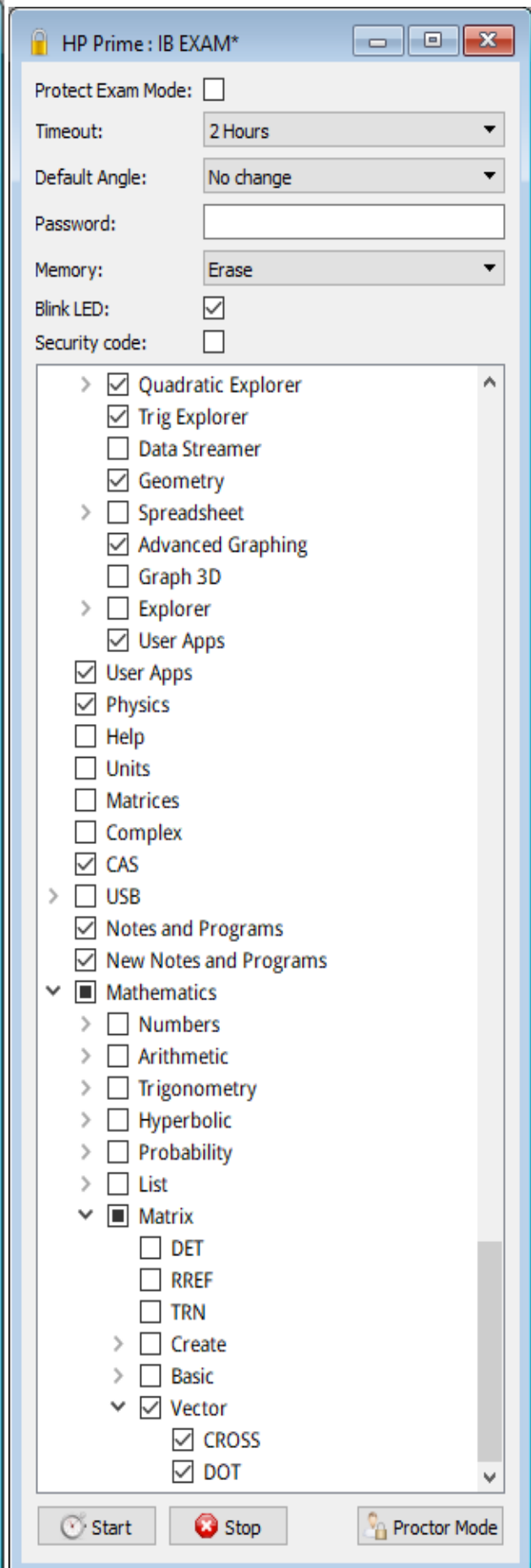The following options in "Exam Mode" mode must be **ticked** and therefore **blocked**.
- PredX
- PredY
- Triangle Solver
- Linear Explorer
- Quadratic Explorer
- Trig Explorer
- Geometry
- Advanced Graphing
- User Apps
- Physics
- CAS
- Notes and Programs
- New Notes and Programs
- Vector
    - CROSS
    - DOT

The following screen shots show how to put the Prime into the correct "Exam Mode".
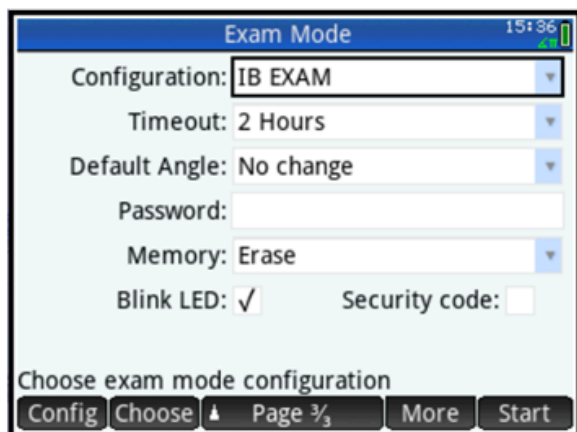
Notes:

- "Timeout" must be set for at least the duration of the examination.
- When put in "Exam Mode", the default angle setting can be set to "Degrees" or "Radians" depending on candidate preference.

Left window:

🔒 HP Prime : IB EXAM*

Protect Exam Mode: ☐
Timeout: 2 Hours ▼
Default Angle: No change ▼
Password: [ ]
Memory: Erase ▼
Blink LED: ☑
Security code: ☐

- ☐ System Apps (▣)
  - ☐ Function
  - ☐ Solve
  - ☐ Statistics 1Var
  - ▣ Statistics 2Var
    - ☑ PredX
    - ☑ PredY
    - ☐ Resid
    - ☐ Do2VStats
    - ☐ Sketch...
  - ☐ Inference
  - ☐ Parametric
  - ☐ Polar
  - ☐ Sequence
  - ☐ Finance
  - ☐ Linear Solver
  - ☑ Triangle Solver
  - ☑ Linear Explorer
  - ☑ Quadratic Explorer
  - ☑ Trig Explorer
  - ☐ Data Streamer
  - ☑ Geometry
  - ☐ Spreadsheet
  - ☑ Advanced Graphing
  - ☐ Graph 3D
  - ☐ Explorer
  - ☑ User Apps
- ☑ User Apps
- ☑ Physics
- ☐ Help
- ☐ Units
- ☐ Matrices
- ☐ Complex
- ☑ CAS
- ☐ USB

[⏱ Start] [⊗ Stop] [🔒 Proctor Mode]

Right window:

🔒 HP Prime : IB EXAM*

Protect Exam Mode: ☐
Timeout: 2 Hours ▼
Default Angle: No change ▼
Password: [ ]
Memory: Erase ▼
Blink LED: ☑
Security code: ☐

  - ☑ Quadratic Explorer
  - ☑ Trig Explorer
  - ☐ Data Streamer
  - ☑ Geometry
  - ☐ Spreadsheet
  - ☑ Advanced Graphing
  - ☐ Graph 3D
  - ☐ Explorer
  - ☑ User Apps
- ☑ User Apps
- ☑ Physics
- ☐ Help
- ☐ Units
- ☐ Matrices
- ☐ Complex
- ☑ CAS
- ☐ USB
- ☑ Notes and Programs
- ☑ New Notes and Programs
- ☐ Mathematics (▣)
  - ☐ Numbers
  - ☐ Arithmetic
  - ☐ Trigonometry
  - ☐ Hyperbolic
  - ☐ Probability
  - ☐ List
  - ▣ Matrix
    - ☐ DET
    - ☐ RREF
    - ☐ TRN
    - ☐ Create
    - ☐ Basic
    - ☑ Vector
      - ☑ CROSS
      - ☑ DOT

[⏱ Start] [⊗ Stop] [🔒 Proctor Mode]

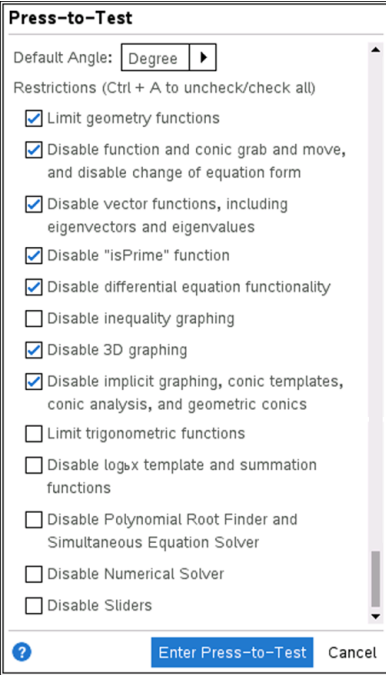# TI Nspire / TI Nspire CX / TI Nspire CX II "Press to Test" configurations
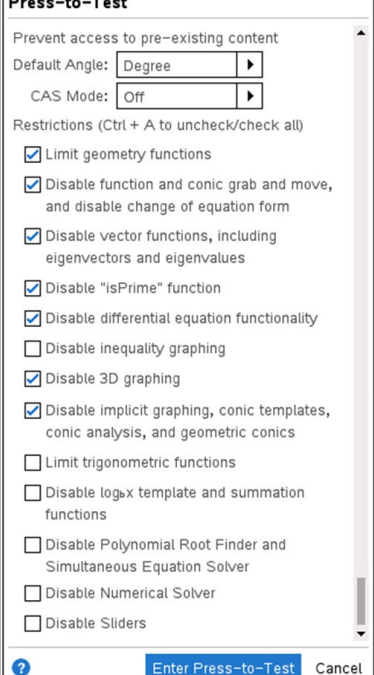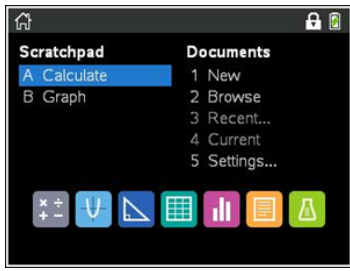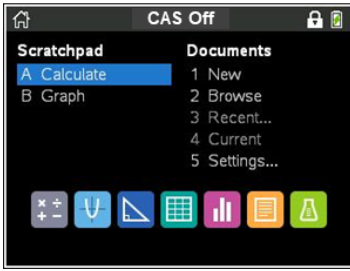
Note: Nspires which have not been put into the correct "Press to Test" mode are not allowed in the examinations. Nspires must be put into "Press to Test" mode immediately before the examination. If done earlier, a candidate must not have access to the calculator between the time it is put into "Press to Test" mode and the examination. Further details about "Press to Test" can be found on the TI website.

The following options in "Press to Test" mode must be **ticked** and therefore **blocked**.
- Limit geometry functions
- Disable function and conic grab and move, and disable change of equation form
- Disable vector functions, including eigenvectors and eigenvalues
- Disable "isPrime" function
- Disable differential equation functionality
- 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
- Disable Numerical Solver
- Disable Sliders

TI-Nspire (non-CAS models)	TI-Npire (selected CAS models) with CAS Mode off	**When complete, Home screens must appear as follows**
• **TI-Nspire CX II** • **TI-Nspire CX II-T** • **TI-Nspire CX** • **TI-Nspire**	• **TI-Nspire CX II CAS** • **TI-Nspire CX II-T CAS** • **TI-Nspire CX II-C CAS**	TI-Nspire (non-CAS models) TI-Nspire (selected CAS models) Screens will vary depending on the selected model

Note: For some devices, an "Exact Arithmetic" mode can be turned on at this stage. This is permitted in IB examinations, although it is not required. For IB GDC examinations the exact value or a 3 significant figure approximation will be credited as correct. Unlike the "Angle Setting", this "Exact Arithmetic" mode cannot be changed once set.

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TI 83 plus / TI 84 plus permitted 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
Transfrm	Transform Graphing—this App allows users to increment a parameter in a function whilst viewing the function; analogous to the sliders in the TI-Nspire models.