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 Programme Resource 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 – all models		TI 83 Plus	
	TI Nspire (non-CAS), with 84 faceplate		TI 83 Plus silver edition	
	TI-Nspire (non-CAS models) • TI-Nspire CX II / CX II-T (OS version 5.0 or higher) • TI-Nspire CX (OS version 4.5.1) • TI-Npsire (OS version 3.9)			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 5.0 or higher) • TI-Nspire CX II-T CAS (OS version 5.0 or higher) • TI-Nspire CX II-C CAS (OS version 5.0 or higher)			
Hewlett Packard	HP Prime updated to the latest firmware in "Exam Mode", with the correct features blocked (see list below)			
Casio	FX 9750G Plus or GII		FX 1.0 Plus	
	CFX 9850 Plus		Graph 35 Plus / 35+E / 35+E II	
	CFX 9950 Plus		Graph 65 Plus	
	FX 9860G /FX 9860G SD /FX 9860G AU		Graph 85 series	
	FX 9860GII / FX 9860GII SD / FX 9860G AU PLUS updated to the latest operating system for IB examinations in "Examination Mode"			
	Graph 75 / Graph 95 updated to the latest operating system for IB examinations in "Examination Mode"		Graph 90+E, in "Examination Mode"	
	FX CG10/20 updated to the latest operating system for IB examinations in "Examination Mode"		FX CG50, in "Examination Mode"	

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

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)	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)
	FX 9860GII / FX 9860GII SD / FX 9860G AU PLUS **not** updated to the latest operating system	
	Graph 75 / Graph 95 **not** updated to the latest operating system	
	CG series - FXCG10/20 **not** updated to the latest operating system	

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 **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.

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 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): • 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

International Baccalaureate®
Baccalauréat International
Bachillerato Internacional

Subjects	Calculators

Mathematical studies SL
 	
Further mathematics HL
	A GDC with the following minimum functionalities is required on all papers:
	• 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:
	  - normal distribution
	  - binomial distribution
	  - Poisson distribution
	  - t-distribution
	  - binomial coefficient $\begin{pmatrix} n \\ r \end{pmatrix}$, nPr
	  - 1 and 2 var stats
	  - chi squared values (including p values)
	
	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.

Mathematics SL Mathematics HL	Calculators are not allowed for paper 1.

	A GDC with the following minimum functionalities is required on all other papers:
	• 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:
	  - normal distribution
	  - binomial distribution
	  - Poisson distribution
	  - t-distribution
	  - binomial coefficient $\begin{pmatrix} n \\ r \end{pmatrix}$, nPr
	  - 1 and 2 var stats
	  - chi squared values (including p values)
	
	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.

International Baccalaureate®
Baccalauréat International
Bachillerato Internacional

Necessary actions with recommended calculators

Casio

FX 9860GII / FX 9860GII SD / FX 9860G AU PLUS / Graph 75 / Graph 95 / FX CG10 / FX CG20 – Operating system download and "Examination Mode" instructions

Follow this link (http://edu.casio.com/ib/index.html) to the Casio website and follow the instructions to install the required operating system for the IB examinations. This link is also to the user manual for the "Examination Mode" functionality which must be engaged immediately before the examination and continue for the duration of the examination.

Note that updating the operating system for the models named "USB POWER GRAPHIC/GRAPHIQUE USB" is sufficient, there is no need to put these into examination mode. However, all memory must be initialized/reset on these models

Please note that the FX CG50 and Graph 90+E already come with an IB approved operating system (3.0) and will not need to be updated. However the latest operating system, 3.20, is available via the link and teachers and students are advised to keep their operating system up to date for device stability and security. As above, the "Examination Mode" functionality must be engaged for the FX CG50 and Graph 90+E immediately before the examination and continue for the duration of the examination.

All recommended Casio calculators

Initialize/reset **all** memory.

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:

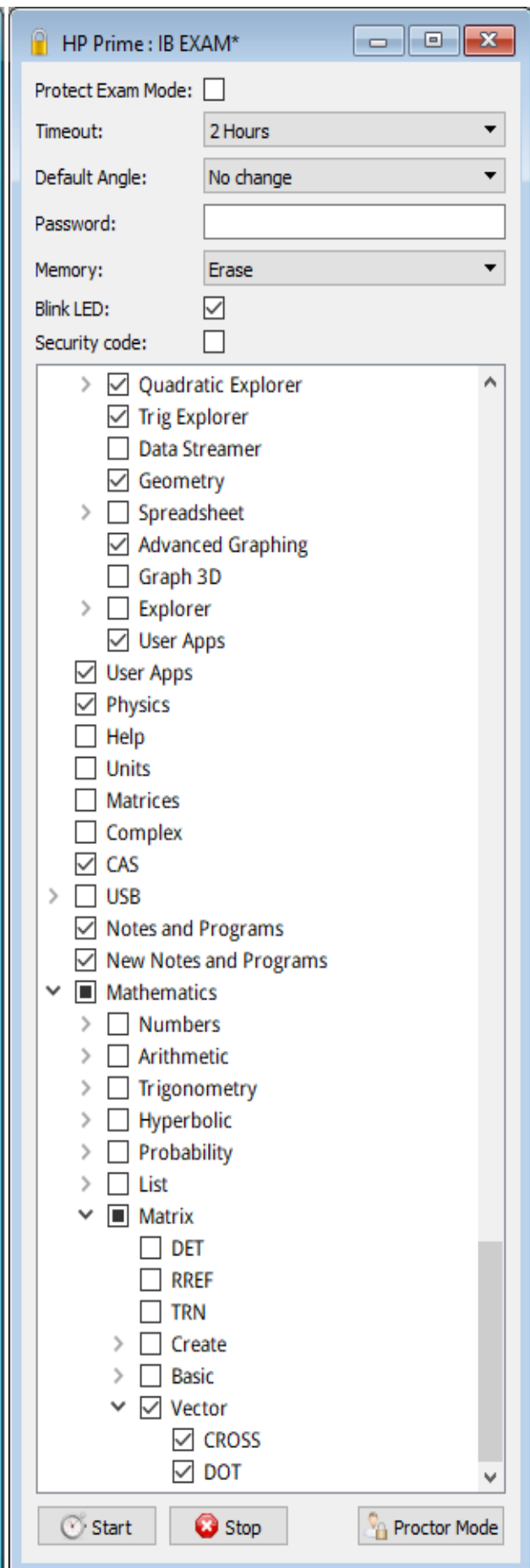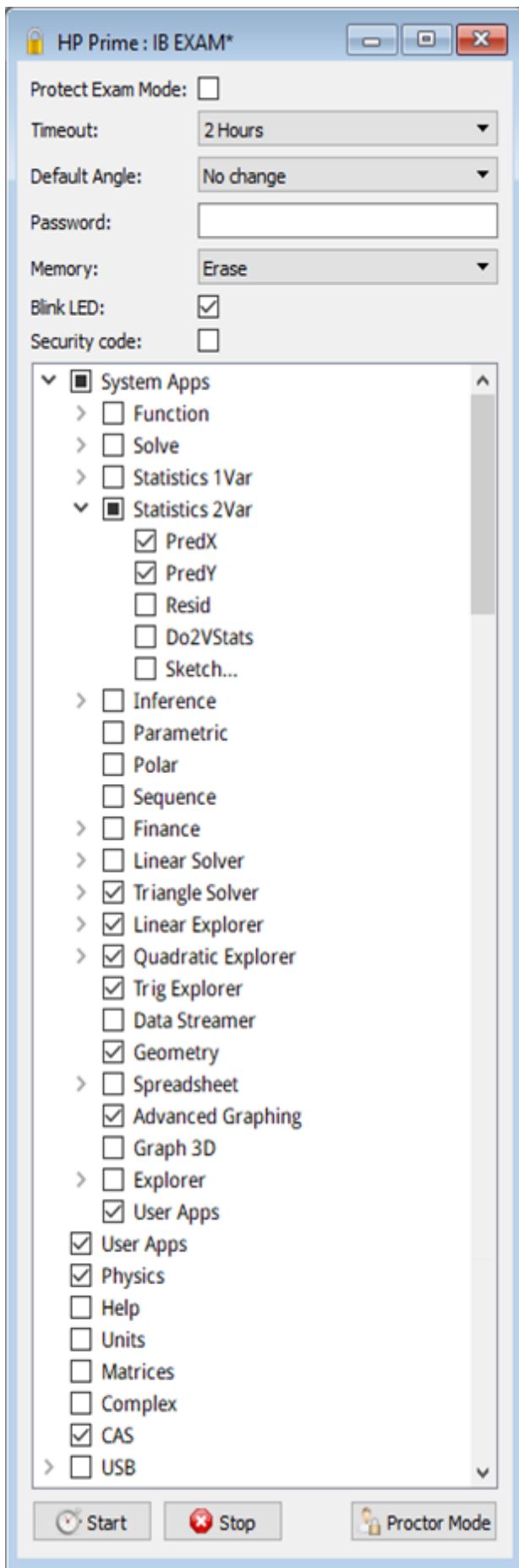The following options in "Exam Mode" mode must be **ticked** and therefore **blocked**.
- PredX
- PredY
- Triangle Solver
- Linear Explorer
- Quadratic Explorer
- Trig Explorer
- Geometry
- Advanced Graphing
- User Apps
- Physics
- CAS
- Notes and Programs
- New Notes and Programs
- Vector
  - CROSS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

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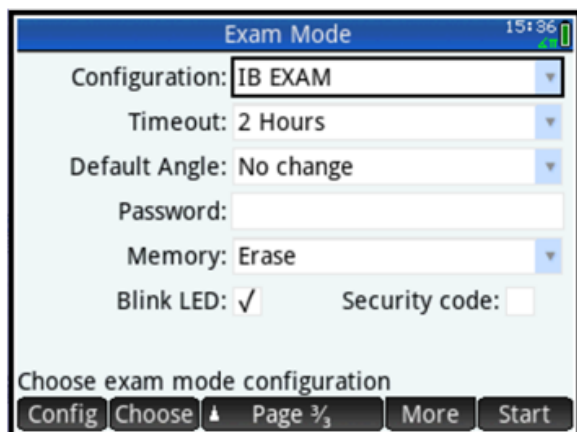
Notes:

- "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.

International Baccalaureate®
Baccalauréat International
Bachillerato Internacional

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]

International Baccalaureate®
Baccalauréat International
Bachillerato Internacional

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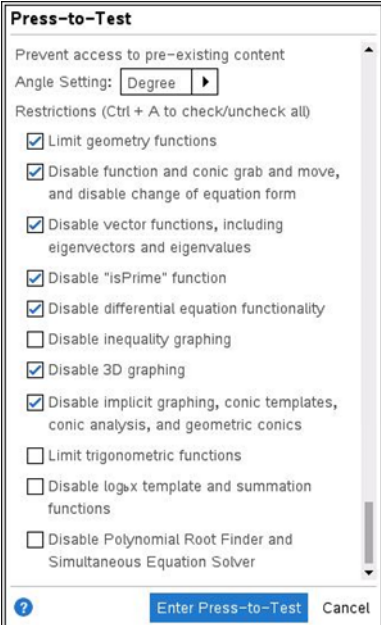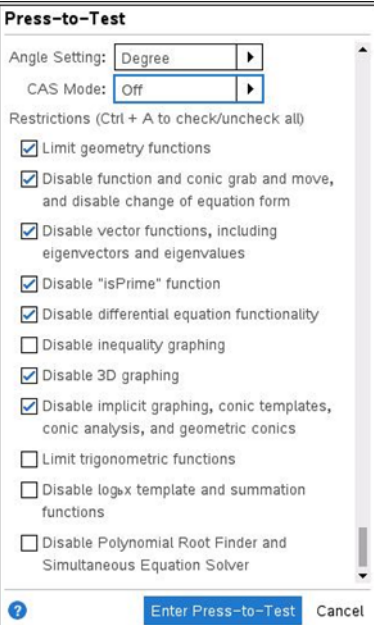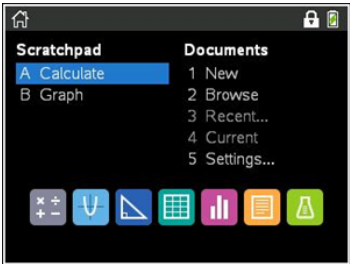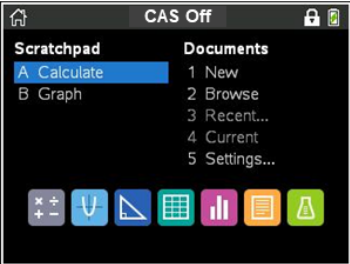
The following options in "Press to Test" mode must be **ticked** and therefore **blocked**.
- Limit geometry functions
- Disable function and conic grab and move, and disable change of equation form
- Disable vector functions, including eigenvectors and eigenvalues
- Disable "isPrime" function
- Disable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

The following screen shots show how to put TI-Nspire calculators into the correct "Press-to-Test" mode.

TI-Nspire (non-CAS models) • **TI-Nspire CX II** • **TI-Nspire CX II-T** • **TI-Nspire CX** • **TI-Nspire**	TI-Npire (selected CAS models) <u>with CAS Mode off</u> • **TI-Nspire CX II CAS** • **TI-Nspire CX II-T CAS** • **TI-Nspire CX II-C CAS**	**When complete, Home screens must appear as follows**
		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.

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