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# Tackling Topic 1: Numbers and Algebra in the IB® Mathematics Curriculum

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TEXAS INSTRUMENTS



# Agenda

- » **Welcome & Introductions**
- » **Topic 1, what was new in the curriculum**
- » **Items that stood out from the May 2021 Exam Session**
- » **How successful were topics from Numbers and Algebra when used on the Math Exploration IA.**
- » **Topic 1 Handheld Tips and Tricks for success in IB**
- » **What's new/updated on the TI/IB Website**
  - » **Let's examine an updated activity on Compound Interest (before and after an IB spin)**
- » **What we are currently working on for the TI/IB Website**
  - » **I am currently working on updated several Topic 1 activities (Properties of Logs, Arithmetic and Geometric Sequences), let's go through the process, thoughts?**
- » **Suggestions for future Topic 1 activities**





# Topic 1: Numbers and Algebra, what was new in the curriculum (as compared to Studies and Math SL)

## » Applications and Interpretations

- » Use of Sigma Notation for both Arithmetic and Geometric Series (from Math SL)
- » Introduction of logs with base 10 and e, and numerical evaluation of logs with technology
- » Solving systems with technology, up to 3 variables
- » Laws of exponents (HL only)
- » Simplifying with rational exponents (HL only)
- » Infinite geometric series (HL only)
- » A LOT with matrices (HL only)

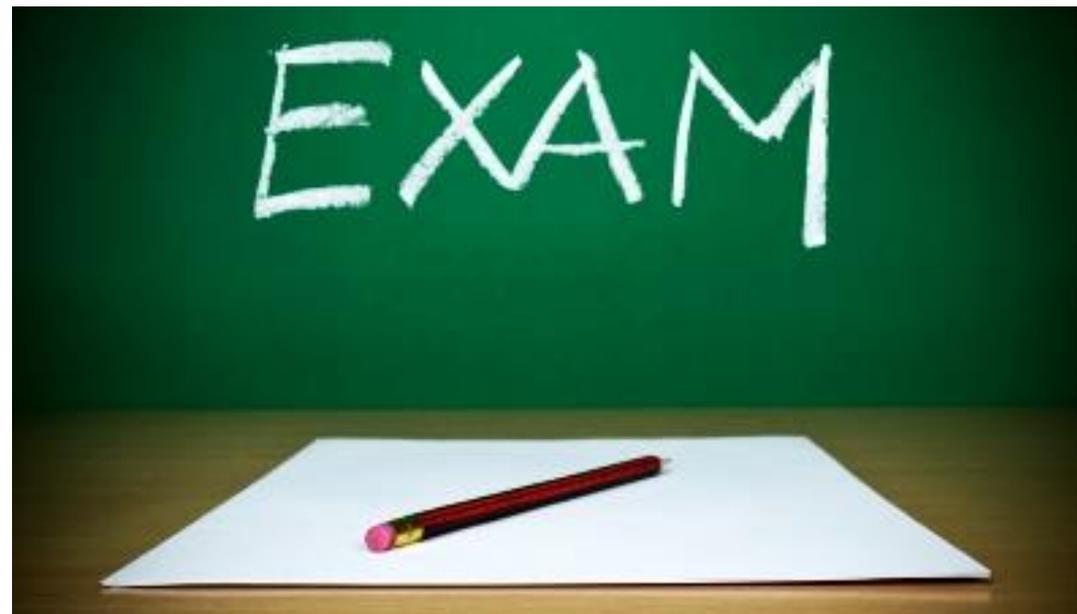
## » Analysis and Approaches

- » Simple deductive proof
- » Binomial expansion with fraction and negative indices (HL only)
- » Partial Fractions (HL only)



# Items that stood out from the May 2021 Exam Session

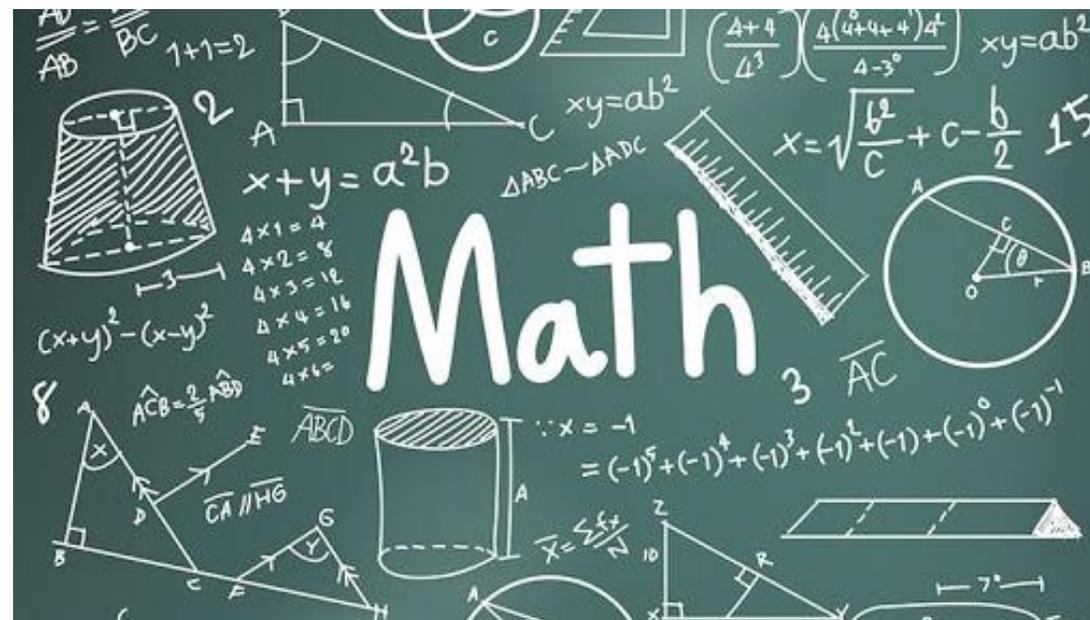
- Writing answers in a  $\times 10^k$  form (volume of planet from AA and AI)
- Finding the first term and common difference of an arithmetic sequence given eighth term and sum of first eight terms are equal (AA)
- Binomial expansion with quadratic binomial and an  $n+1$  exponent (AA)
- Compound Interest (AA and AI)
- Percent Error (AI)
- Geometric Sequence (AI)





## How Successful were Topics from Numbers and Algebra when used for the Math Exploration IA

- Percentage Error
- Use of scientific notation
- Arithmetic Sequences
- Geometric Sequences
- A sprinkling of money/interest

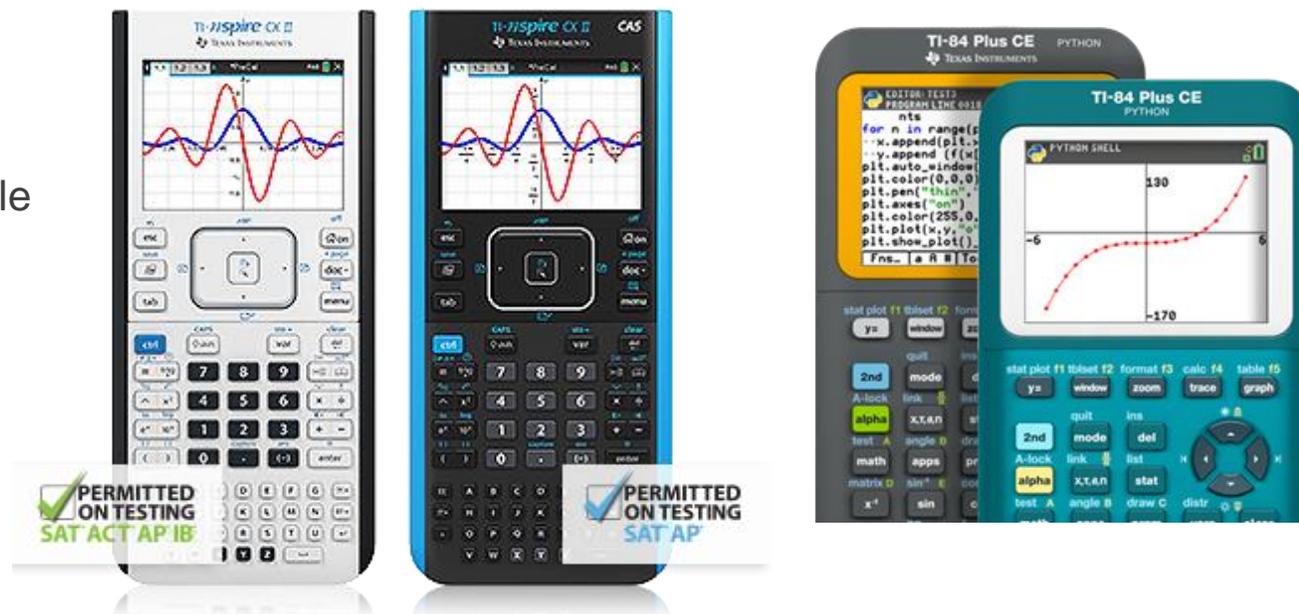




# Topic 1 Handheld Tips and Tricks for Success in IB

## For the TI Nspire CX II and the TI-84 Plus CE

- How to use numeric solver
- How to use the finance applications
- How to graph sequences and use the table of values
- How to use scientific notation
- How to alter the number of significant figures





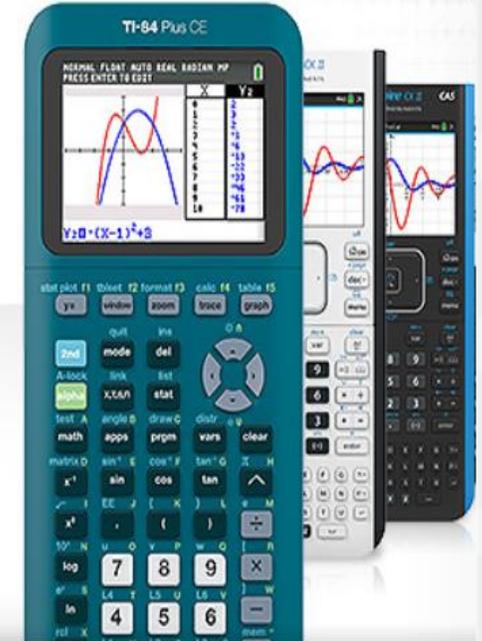
# What is New on the TI Website?

- » <https://education.ti.com/en> or
- » <https://education.ti.com/en/ib>
- » **New activities**
  - » Sampling Techniques
  - » Bounded Areas
  - » t-Test
  - » Voronoi Diagrams
- » **Updated Activities**
  - » Binomial PDF, Chi-Squared Tests, **Compound Interest**, Derivatives and Their Graphs, Correlation, Taylor Polynomials, Investigating Derivatives of Common Functions
- » **New Exam Style Questions**

## The right graphing calculator for you

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# What are we currently working on?

- » <https://education.ti.com/en> or
- » <https://education.ti.com/en/ib>
- » **New activities**
  - » Angle of Elevation and Depression
  - » Finding the Inverse, Domain and Range of a Function
  - » 3D Surface Area and Volume
  - » Integration and Differentiation using Profit Equations
- » **Updating activities**
  - » Circles (Angles and Arcs), **Properties of Logs**, Trig Ratios, **Geometric and Arithmetic Sequences and Series**, Exponential Growth and Decay

## Resources for IB® Diploma Programme mathematics teachers

Support student success for the new International Baccalaureate® (IB®) Diploma Programme mathematics curricula using Texas Instruments (TI) resources.

TI activities and webinars help strengthen:

- » Mastery of concepts and principles
- » Logical, critical and creative thinking
- » Breadth and depth of knowledge



## Explore free activities



### Analysis and Approaches

Get activities that support core concepts for Mathematics: Analysis and Approaches.



### Applications and Interpretation

Get activities that support core concepts for Mathematics: Applications and Interpretation.

# Suggestions for Future Topic 1 Activities

In the chat window or sent to my email address [wilkiedan@gmail.com](mailto:wilkiedan@gmail.com), what topics would you like activities and questions created for?

What I have heard so far:

- Standard Normal Distribution
- Algebraic Proof
- Amortization
- Kinematics
- Solving Trig Equations
- Calculus in real life

