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# Tackling Topic 2: Functions in the IB® Mathematics Curriculum

[education.ti.com/webinars](https://education.ti.com/webinars)



TEXAS INSTRUMENTS

# Agenda

- » **Welcome & Introductions**
- » **Topic 2, what was new in the curriculum**
- » **Items that stood out from the May 2021 Exam Session**
- » **How successful were topics from Functions when used on the Math Exploration IA.**
- » **Topic 2 Handheld Tips and Tricks for success in IB**
- » **What's new/updated on the TI/IB Website**
  - » **Quick scan of the current activities**
- » **What we are currently working on for the TI/IB Website**
  - » **I am currently working on updated two Topic 2 activities (Cool in the Pool and Which Garage is Better), let's go through the process, thoughts?**
- » **Suggestions for future Topic 2 activities**





# Topic 2: Functions, what was new in the curriculum (as compared to Studies and Math SL)

## » Applications and Interpretations

- » Inverse as a reflection over the line  $y = x$   
(from Math SL)
- » The y-axis as a vertical asymptote (from Math SL)
- » Sinusoidal models in the form  $f(x) = a \sin (bx) + d$
- » Modeling Skills to develop, fit, test and use them
- » Logistic and Piecewise models (HL only)
- » Scaling large and small numbers with logs (HL only)
- » Log-log and semi-log graphs (HL only)

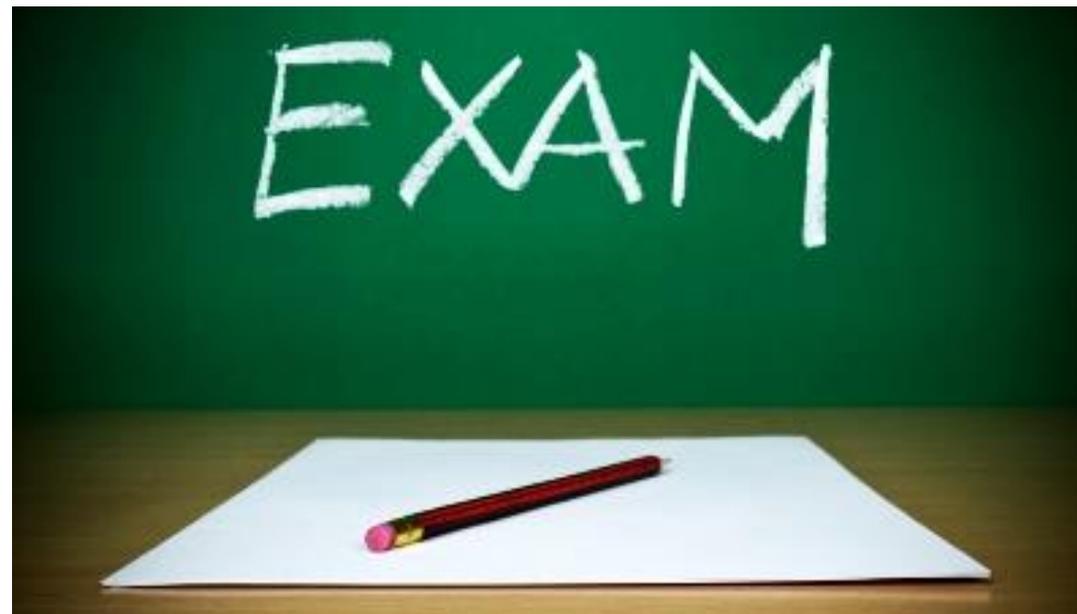
## » Analysis and Approaches

- » Nothing for SL
- » The graphs of functions:  $y = |f(x)|$ ,  $y = f(|x|)$ ,  $y = 1/f(x)$ ,  $y = f(ax+b)$ ,  
 $y = [f(x)]^2$  (HL only)
- » Solutions to modulus equations and inequalities (HL only)



# Items that stood out from the May 2021 Exam Session

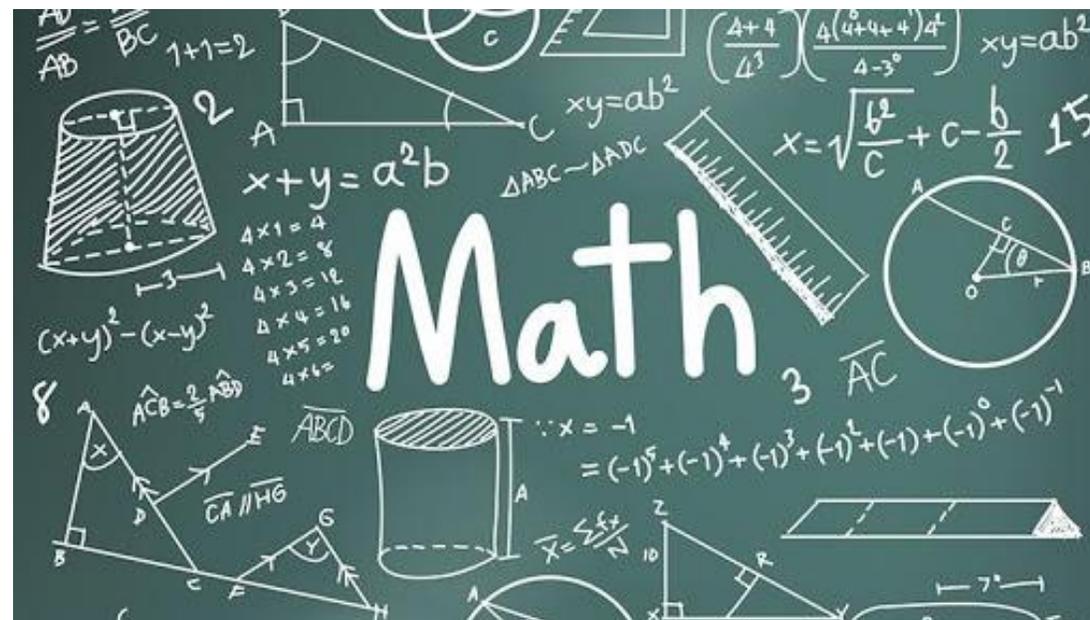
- Working with Quadratics (modeling, graphing, finding important features)
- Finding the inverse of a function (rational or linear) and how to use it both algebraically and graphically
- Using an exponential model to solve for a variable in the exponent
- Finding the domain and/or range of a function or its inverse
- Inverse relationships, sharks and sirens!





## How Successful were Topics from Functions when used for the Math Exploration IA

- Modeling
- Quadratic Functions
- Exponential and Log Functions
- Lines and Slopes
- Transformations





# Topic 2 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 Polynomial Root Finder
- Simultaneous Equations Solver
- How can graphing help with an inverse





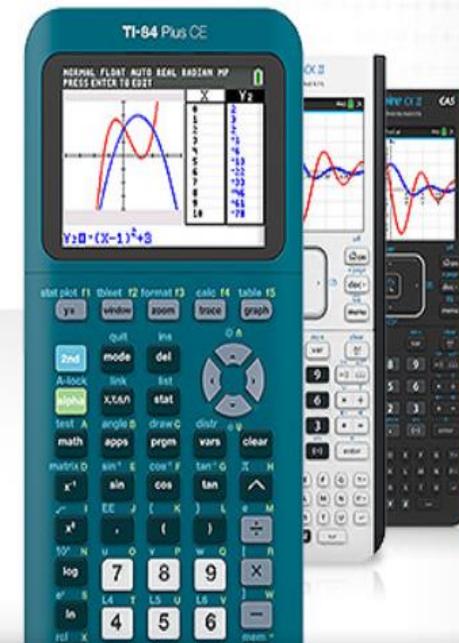
# What is New on the TI Website?

- » <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, Which Garage is Better?, 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 2 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

