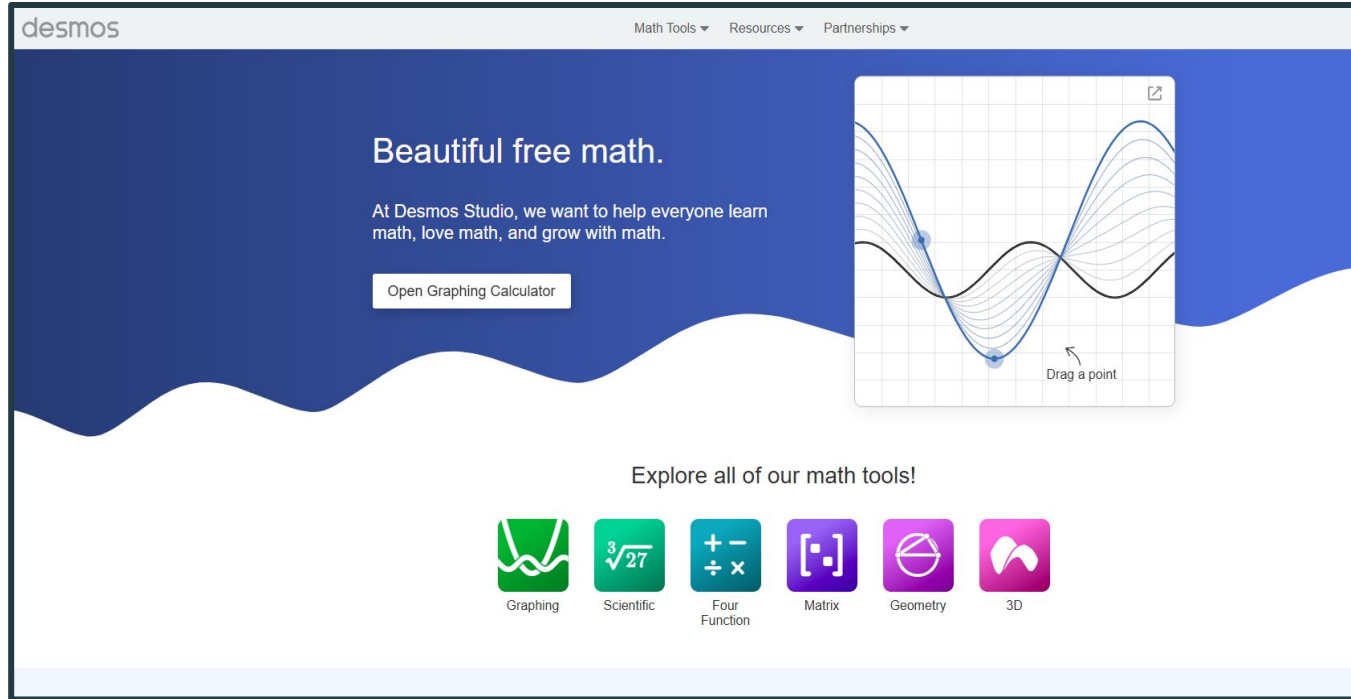


Desmos



Desmos: A New Way to See Math

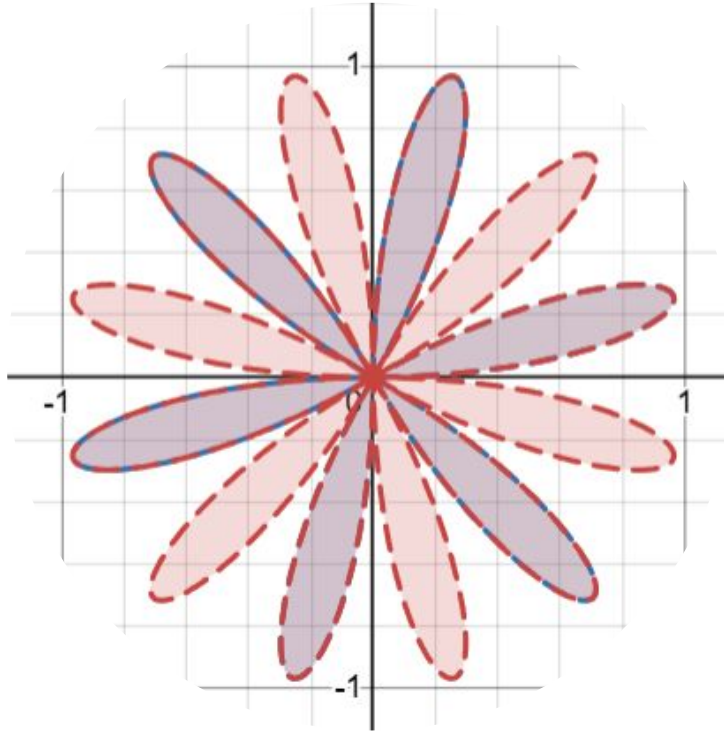
Presented by: Shivani Sharma

Academic Consultant CIET, NCERT

Desmos: A New Way to See Math

01 — Desmos provides powerful graphing calculator capabilities

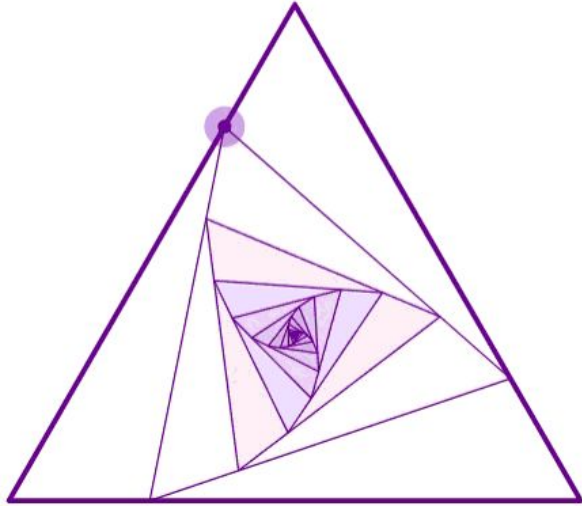
02 — See math in a new way with Desmos tools



03 — Explore mathematical functions with ease using Desmos

04 — Desmos is available as a web and mobile application

Introducing Desmos



- Desmos: an advanced online graphing calculator
- Makes learning math visual and interactive
- Completely free and accessible to everyone
- New way to explore the world of numbers

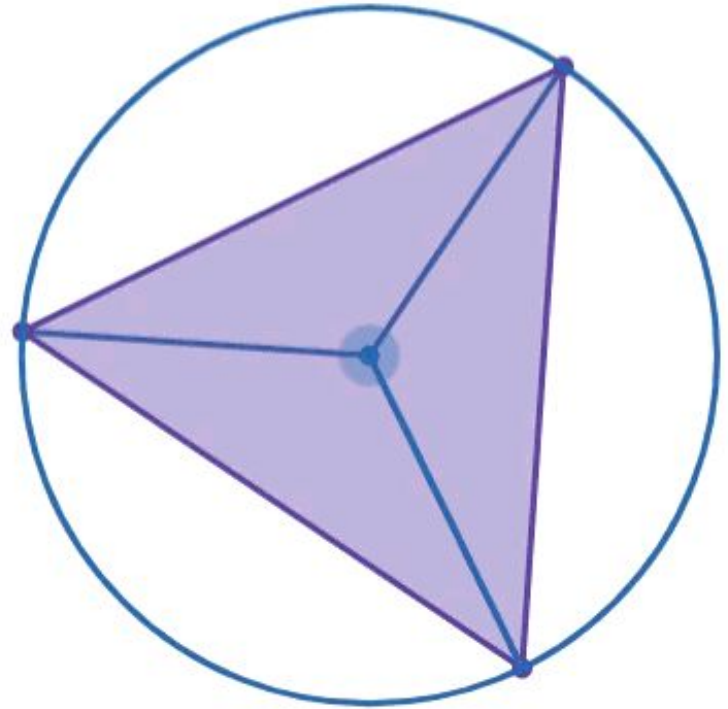
Accessing Desmos

- Desmos website is easily accessible with no installation.
- Access Desmos directly through any web browser. Type **www.desmos.com** in the address bar.
- Compatible with computers, tablets, and smartphones
- Free Desmos mobile apps are available for download



Why Desmos is Important

- Visualizes complex math concepts
- Encourages exploration and discovery
- Promotes accessibility for all
- Fosters creativity in learning



Desmos Key Features

- Dynamic graphing and visualization tools
- Interactive sliders for variable exploration
- Comprehensive scientific calculator functions
- Regressions, statistics, and list operations



The Desmos Suite

- Graphing Calculator for advanced visualizations
- Scientific Calculator for complex equations
- Four Function Calculator for basic arithmetic
- Matrix Calculator for linear algebra problems
- Geometry Tool for interactive geometric constructions
- 3D Calculator for three-dimensional graphing



Explore all of our math tools!



Graphing



Scientific



Four
Function



Matrix



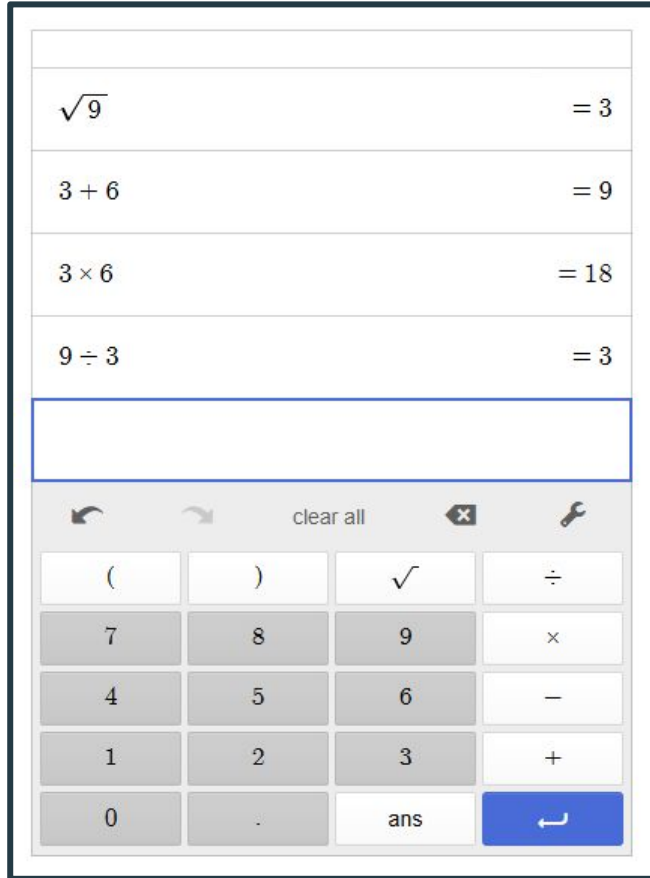
Geometry



3D

Four Function Calculator: Simple

- Designed for quick and easy calculations
- Features the four basic operations
- Includes percentages and square roots
- Perfect for everyday math problems



Scientific Calculator: Overview

The screenshot displays a scientific calculator interface with a white background and a blue border. The top section shows four calculations in a list:

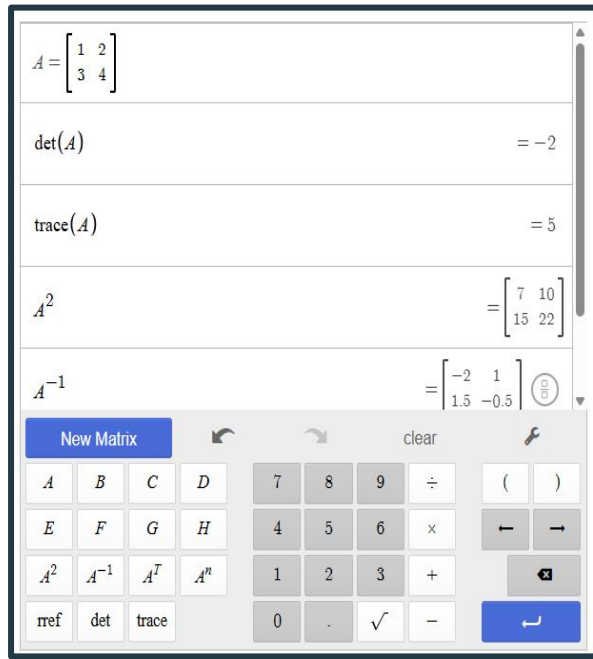
- $\tan\left(\frac{\pi}{4}\right) = 0.01370864253$
- $\log(10) = 1$
- $\sin(e^3) \log(5) = 0.2400421169$
- $\cos^{-1}(0) = 90$

Below the calculations is a keypad with a grey background. The keypad has a top row with tabs: "main", "abc", "func" (highlighted with a blue underline), "RAD", "DEG" (highlighted with a blue border), a left arrow, a right arrow, "clear", and a wrench icon. The keypad is organized into a grid of buttons:

sin	cos	tan	a^b	$\sqrt{\quad}$	$\sqrt[n]{\quad}$
$\sin^{-1}$	$\cos^{-1}$	$\tan^{-1}$	e^x	abs	round
mean	stdev	stdevp	ln	log	$\times$
nPr	nCr	!	e	π	$\leftarrow$

- Performs complex numerical calculations with ease
- Handles basic arithmetic to advanced functions
- Includes trigonometry, logarithms, and exponents
- Simple interface, easier than physical calculators

Matrix Calculator: Overview



01 Create and manipulate matrices of any size

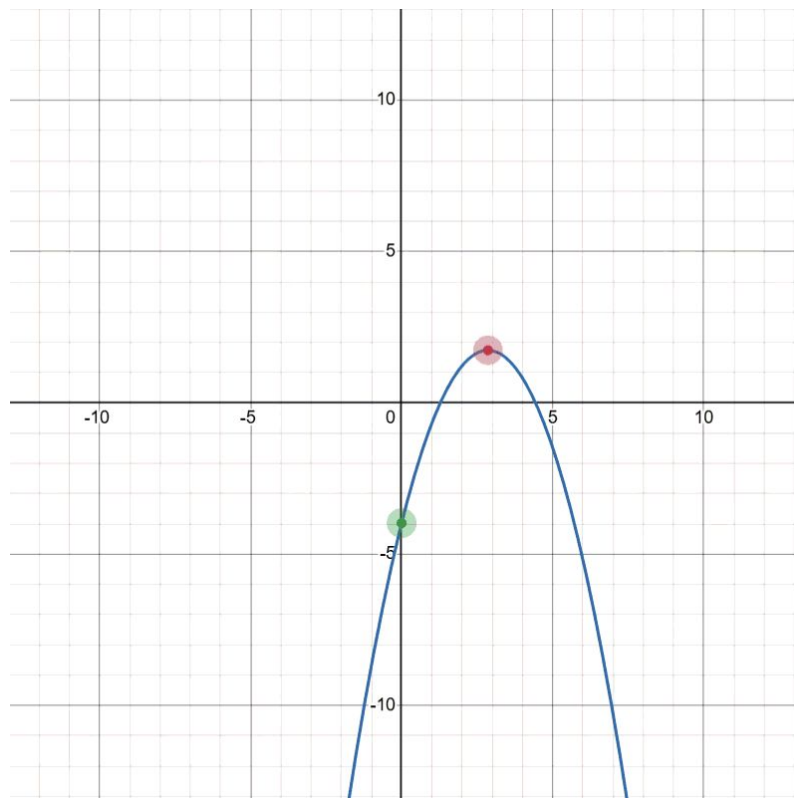
03 Perform essential matrix operations: Addition and Subtraction

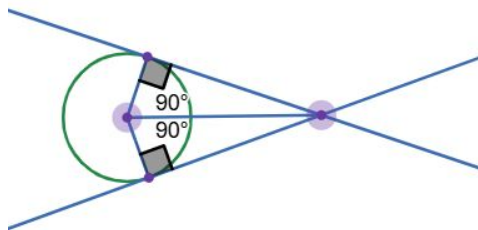
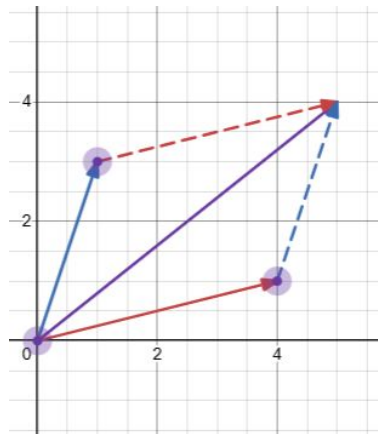
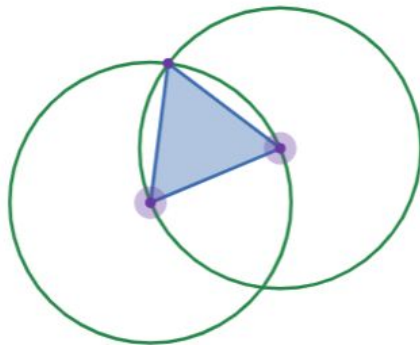
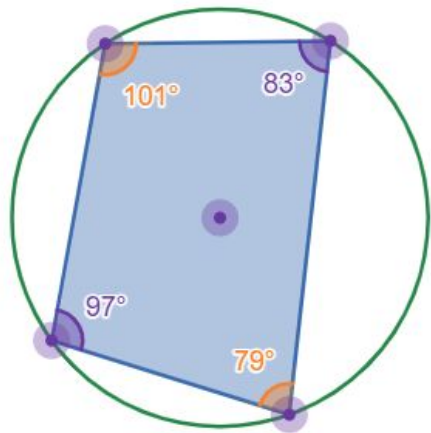
02 Easily create and manipulate matrices of any size

04 Find determinants, inverses, and RREF efficiently

Graphing Calculator in Action

- Write the equation $y = ax^2 + bx + c$
 - Use sliders for a , b , and c
 - Demonstrate how the parabola changes
 - Point out the vertex and axis of symmetry
-
- " a " determines the parabola's shape
 - Positive " a " opens the parabola upwards
 - Negative " a " opens the parabola downwards
 - " c " moves the parabola vertically on the y-axis
 - " b " moves the parabola horizontally



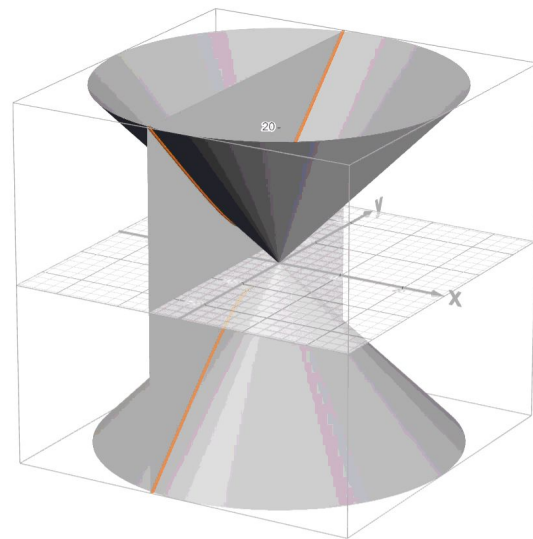
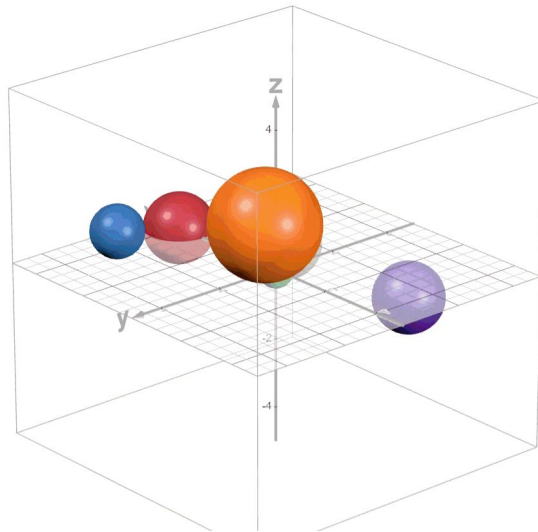
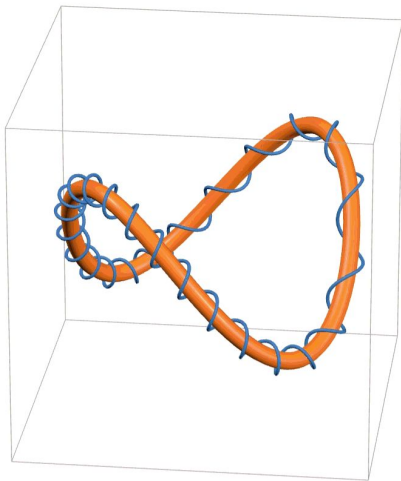


Geometry Tool: Overview

- Explore shapes, proofs, and transformations dynamically
- Construct points, lines, circles, and polygons
- Apply rotations, reflections, and translations
- Measure angles, lengths, and areas precisely
- Visualize and understand geometric theorems

3D Calculator

- Graph and explore three-dimensional surfaces
- Create stunning 3D curves and points
- Rotate and zoom to explore 3D graphs
- Ideal for multivariable calculus visualization



NCERT with Desmos

Example 1 Solve the following linear programming problem graphically:

Maximise $Z = 4x + y$... (1)

subject to the constraints:

$$x + y \leq 50 \quad \dots (2)$$

$$3x + y \leq 90 \quad \dots (3)$$

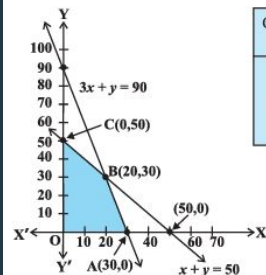
$$x \geq 0, y \geq 0 \quad \dots (4)$$

Solution The shaded region in Fig 12.2 is the feasible region determined by the system of constraints (2) to (4). We observe that the feasible region OABC is **bounded**. So, we now use Corner Point Method to determine the maximum value of Z .

The coordinates of the corner points O, A, B and C are $(0, 0)$, $(30, 0)$, $(20, 30)$ and $(0, 50)$ respectively. Now we evaluate Z at each corner point.

Reprint 2025-26

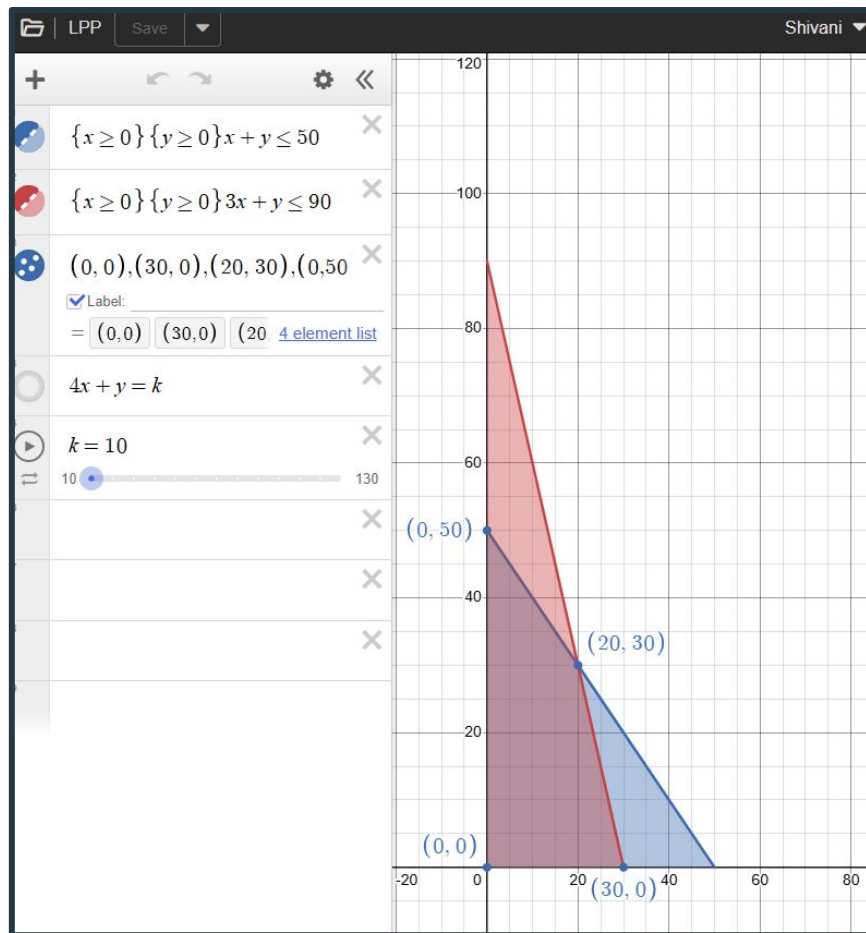
400 MATHEMATICS



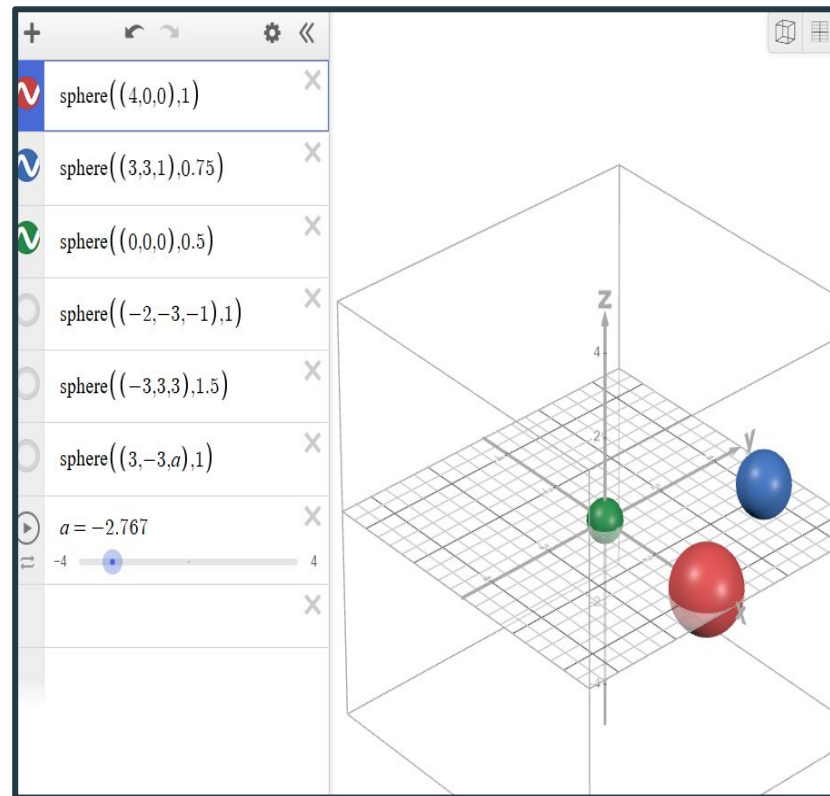
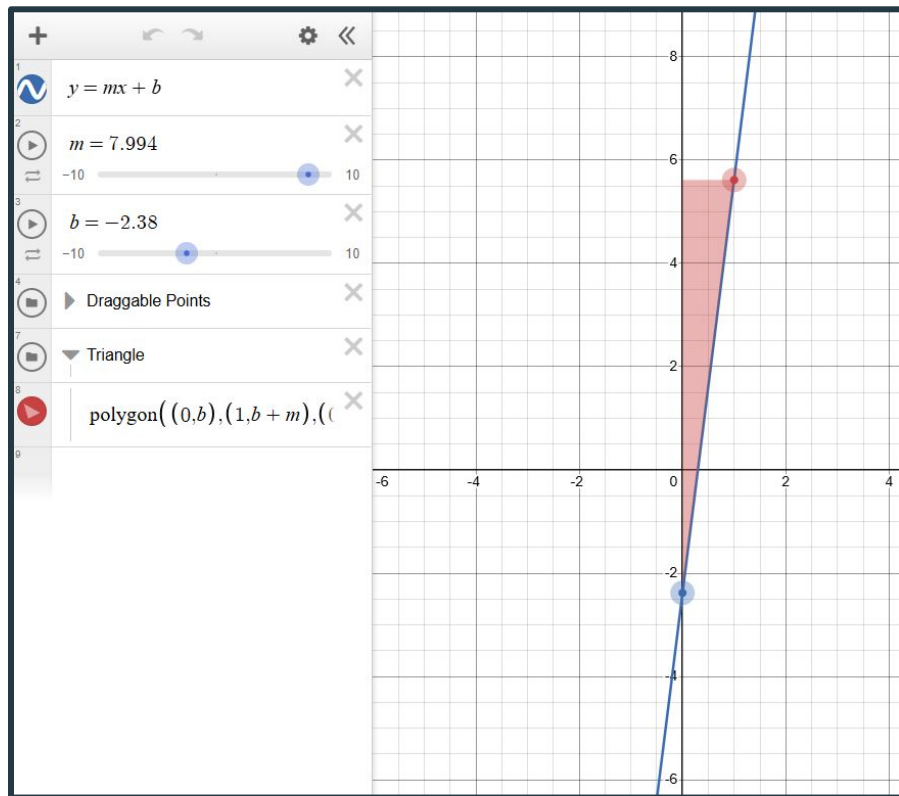
Corner Point	Corresponding value of Z
$(0, 0)$	0
$(30, 0)$	120 ← Maximum
$(20, 30)$	110
$(0, 50)$	50

Fig 12.2

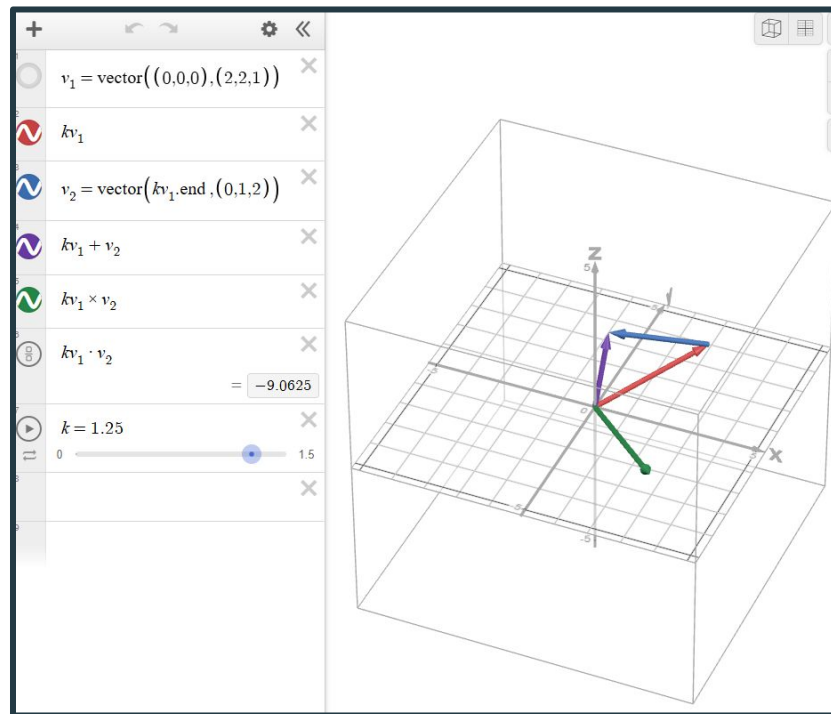
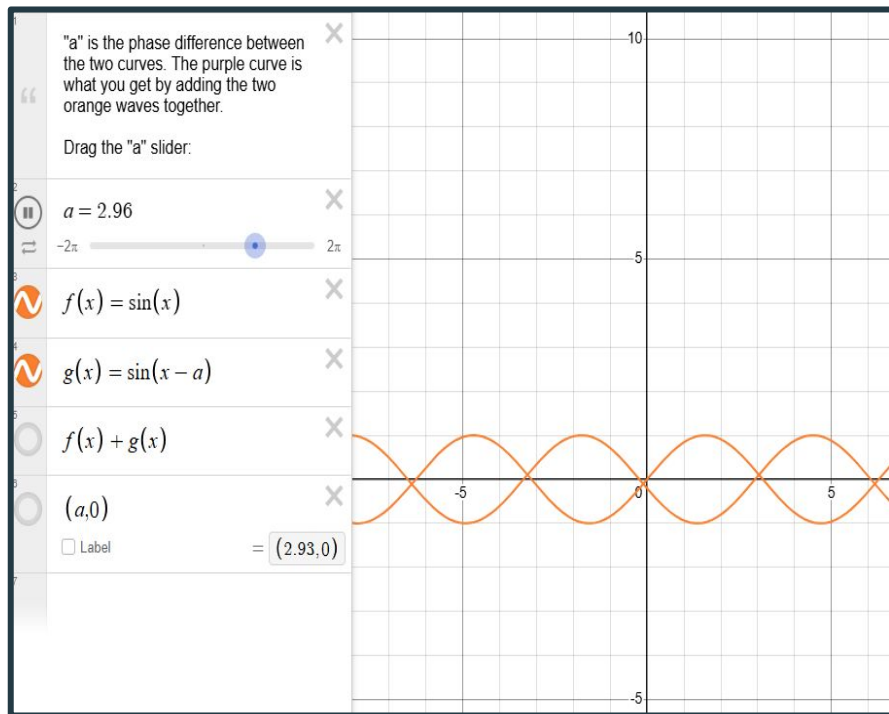
Hence, maximum value of Z is 120 at the point $(30, 0)$.



Some Examples



Some Examples



Desmos: The Verdict



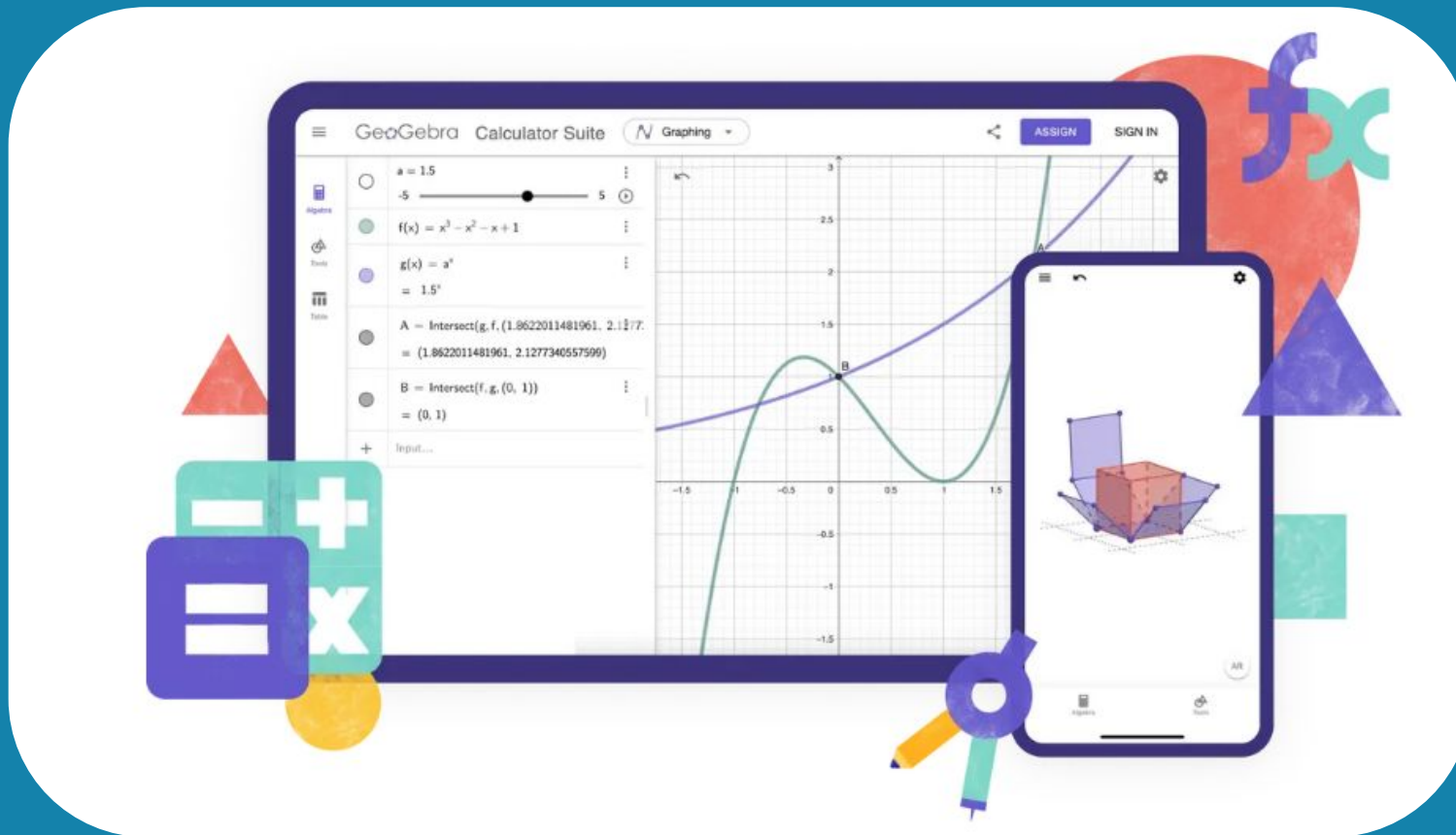
- Desmos offers versatile tools for all math levels
- It is freely accessible online and easy to use
- Visualizations make math intuitive and engaging
- Connects equations to graphs for better understanding



THANK YOU!

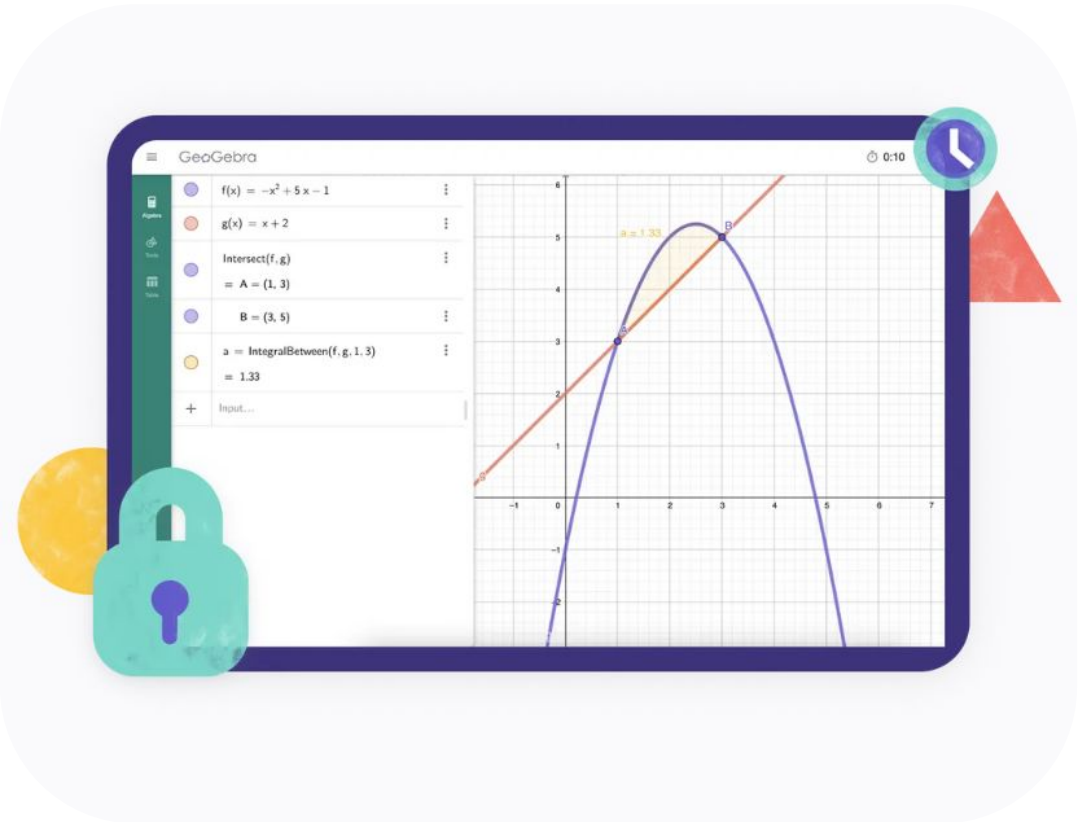
Welcome to GeoGebra

An effective tool for Interactive visualizations & problem-solving



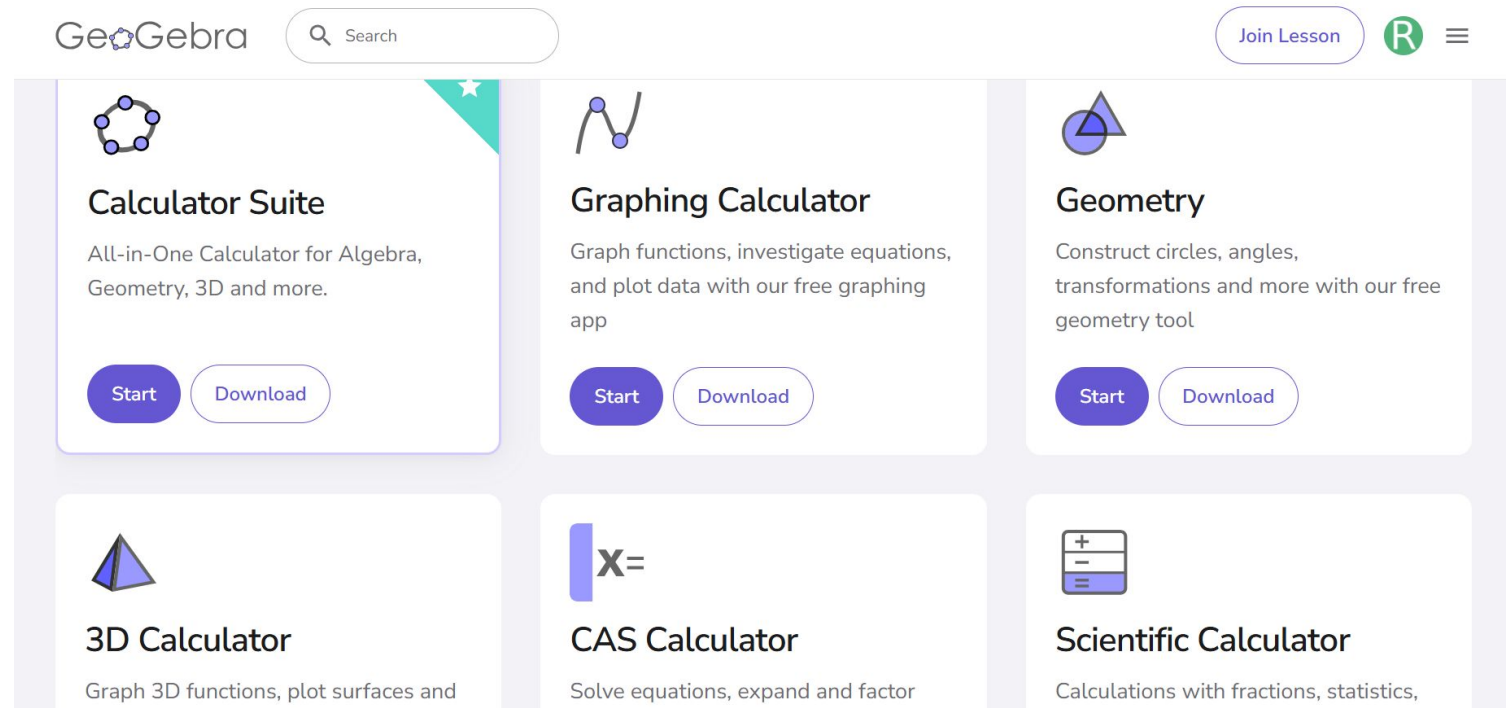
About GeoGebra

- ❖ Introduction
- ❖ System requirement
- ❖ Features of GeoGebra
- ❖ Benefits of using GeoGebra
- ❖ Applications of GeoGebra
- ❖ Example in Action
- ❖ Conclusion



Introduction

- ❖ GeoGebra is a **free software** designed to explore **mathematics** and **geometry**.
- ❖ It is an **interactive** platform that helps **visualize** graphs, shapes, and mathematical concepts.
- ❖ Available **both online** and **offline**, widely used in classrooms and self-learning.

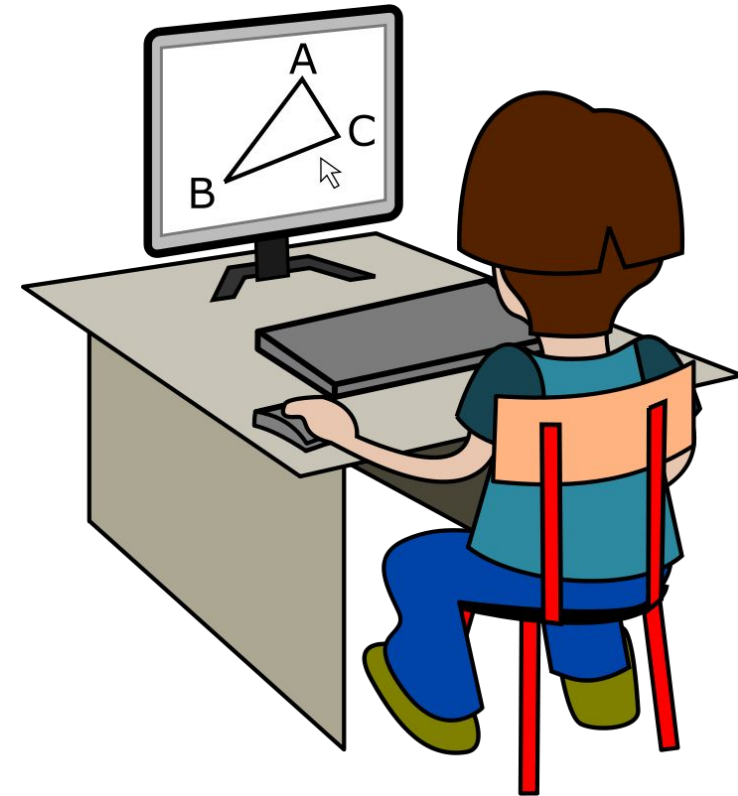


System Requirements

Desktop, Laptop, tablet or mobile

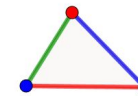
Internet connectivity

Modern web browsers like Google
Chrome, Mozilla Firefox, Microsoft Edge,
Opera



Features of GeoGebra

- ❖ **Graphing:** Plot and analyze functions and equations
- ❖ **Geometry:** Create and manipulate shapes and figures
- ❖ **Algebra:** Solve equations and expressions
- ❖ **3D Graphing:** Create and explore 3D graphs
- ❖ **Interactive:** Dynamic and engaging visualizations
- ❖ **Cross-Platform:** Available on desktop, mobile, and web



Resources ▴



Number Sense

Understanding numbers, their relationships and numerical reasoning



Algebra

Using symbols to solve equations and express patterns



Geometry

Studying shapes, sizes and spatial relationships in mathematics



Measurement

Quantifying and comparing attributes like length, weight and volume



Operations

Performing mathematical operations like addition, subtraction, division

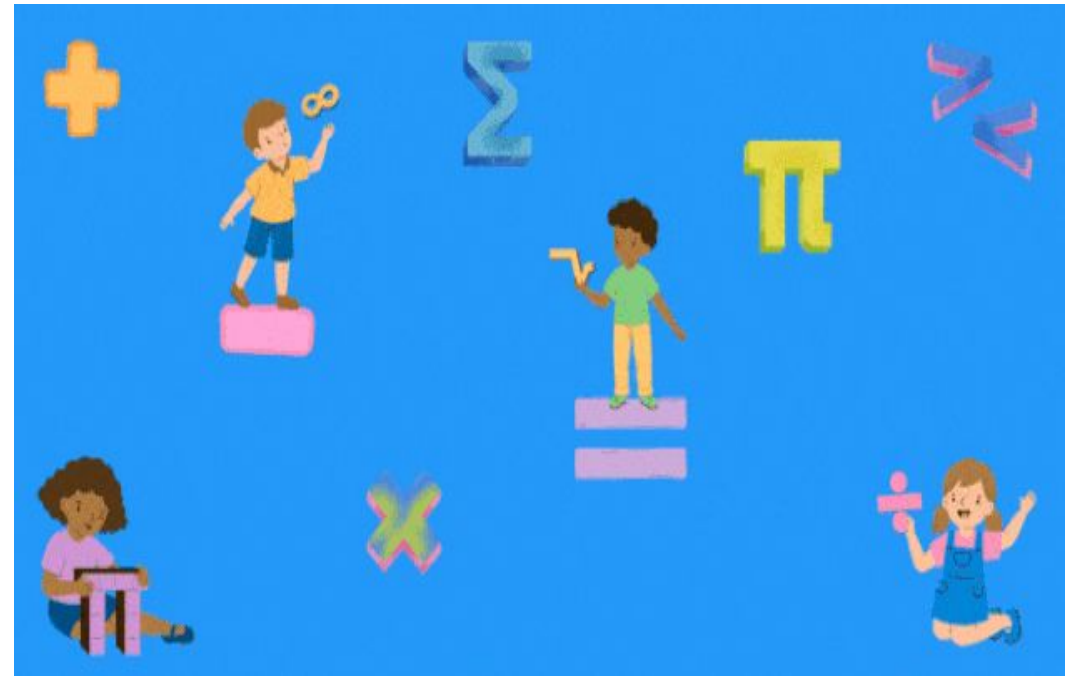


Probability and Statistics

Analyzing uncertainty and likelihood of events and outcomes

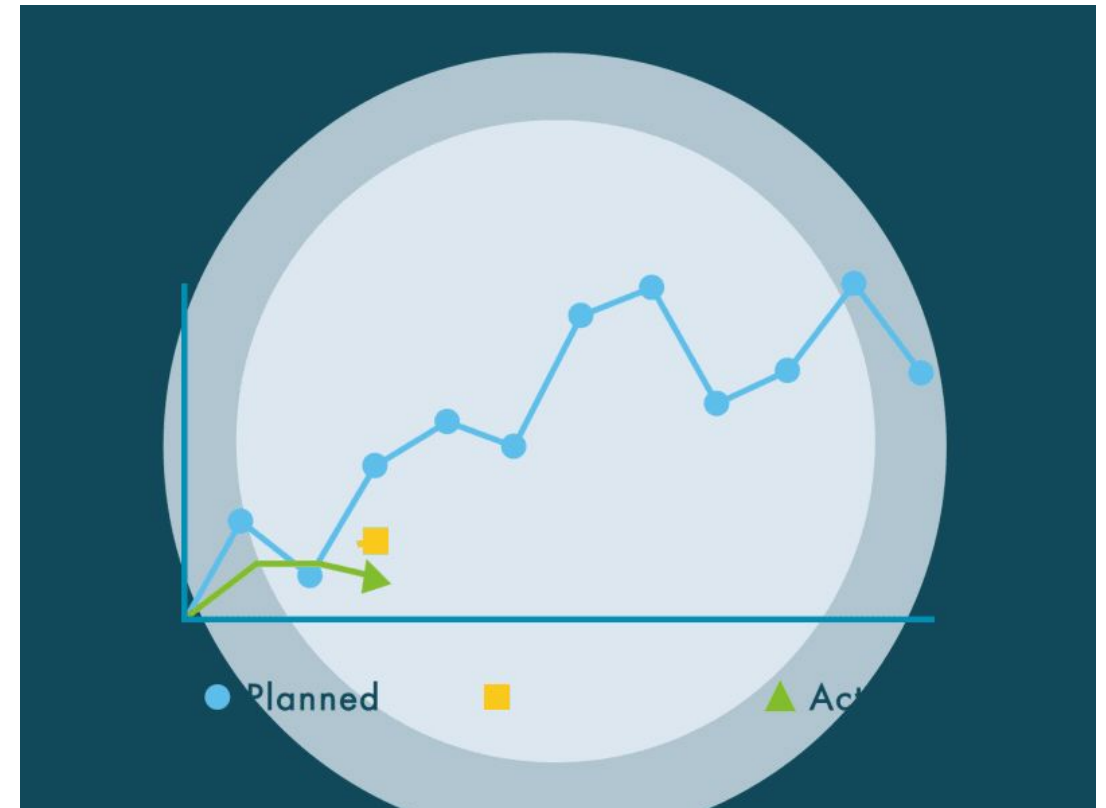
Benefits of Using GeoGebra

- ❖ Makes mathematics and geometry **easy to visualize**
- ❖ **Simplifies** complex problem-solving
- ❖ Provides an **engaging** and **interactive** learning experience
- ❖ Useful for both teaching and research purposes
- ❖ Supports **collaboration** and easy sharing of work
- ❖ Free and **accessible** globally



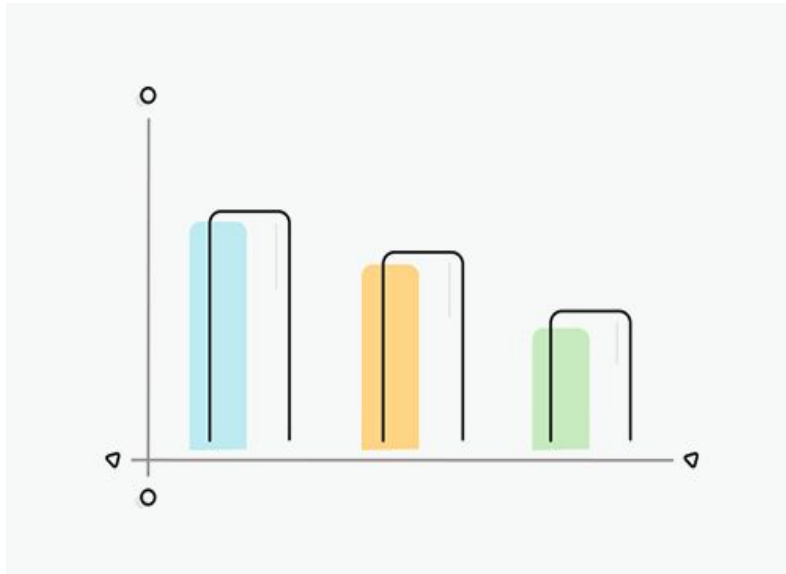
Applications of GeoGebra

- ❖ **Education:** Widely used to teach mathematics and geometry
- ❖ **Research:** Supports exploration of mathematical models and concepts
- ❖ **Problem-Solving:** Helps in solving complex mathematical problems
- ❖ **STEM Fields:** Applied in science, technology, and engineering
- ❖ **Global Usage:** Adopted in schools, universities, and online learning platforms

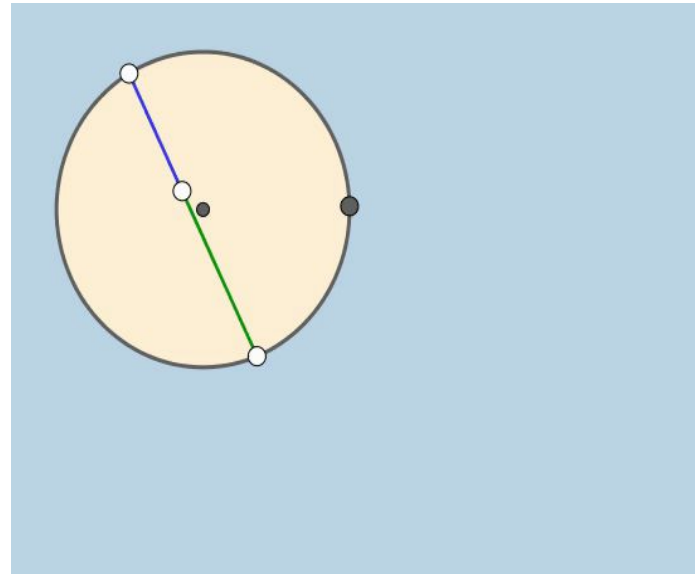


Examples of GeoGebra in Action

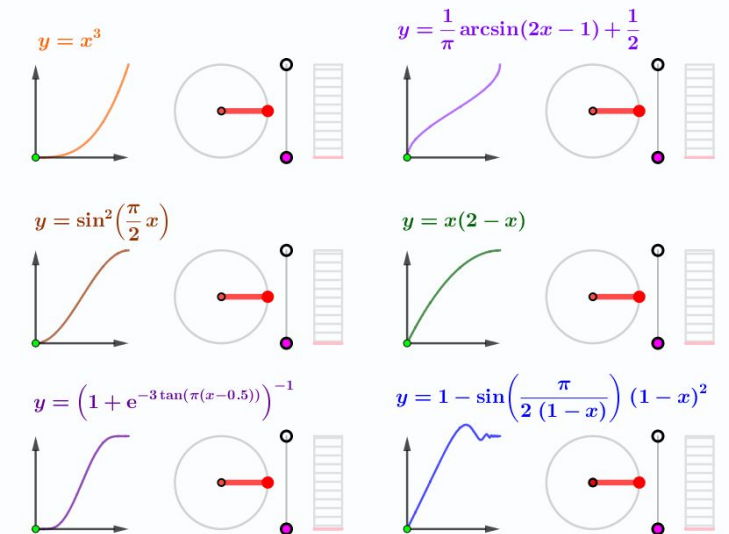
❖ Graphs of functions and equations



❖ Geometric shapes and constructions



❖ Algebraic equations and solutions



Conclusion

- ❖ GeoGebra is a powerful and versatile tool for exploring mathematics and geometry.
- ❖ Its features, accessibility, and global adoption make it valuable for education, research, and problem-solving.
- ❖ A go-to resource for students, teachers, and professionals in STEM.

