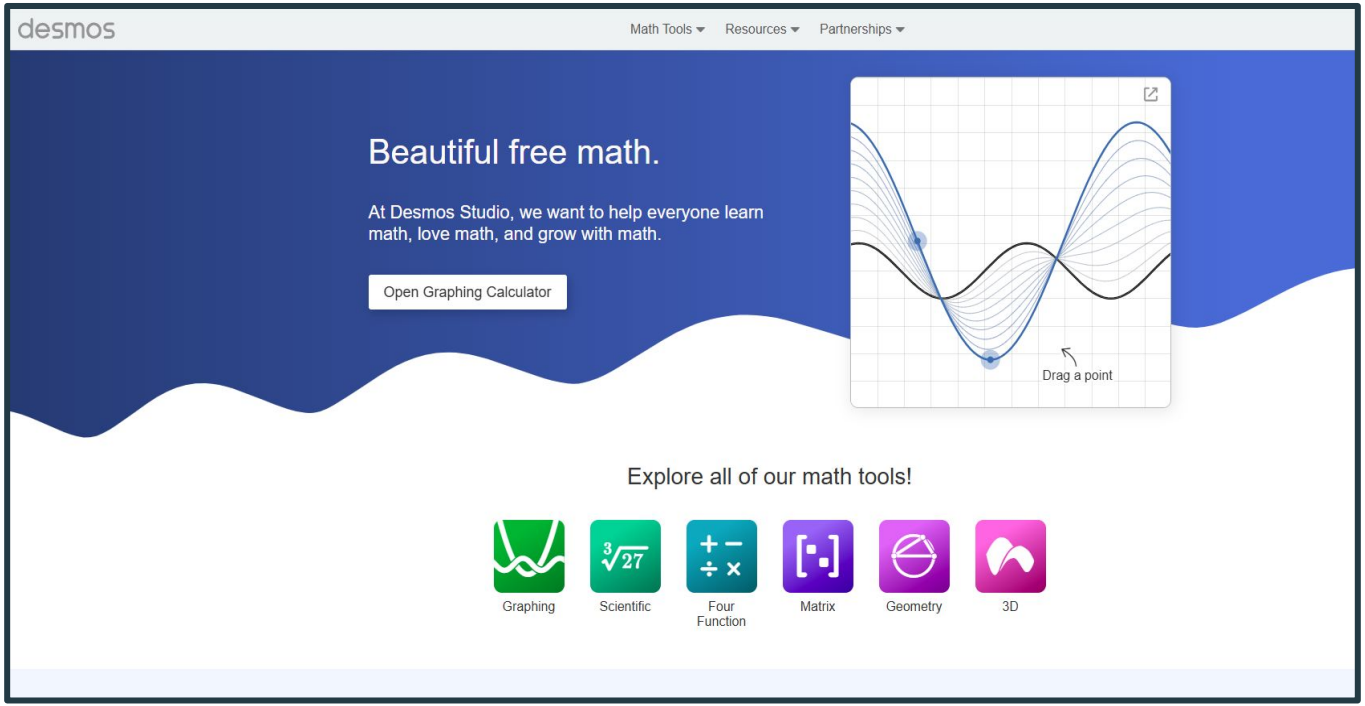
Desmos



Desmos: A New Way to See Math

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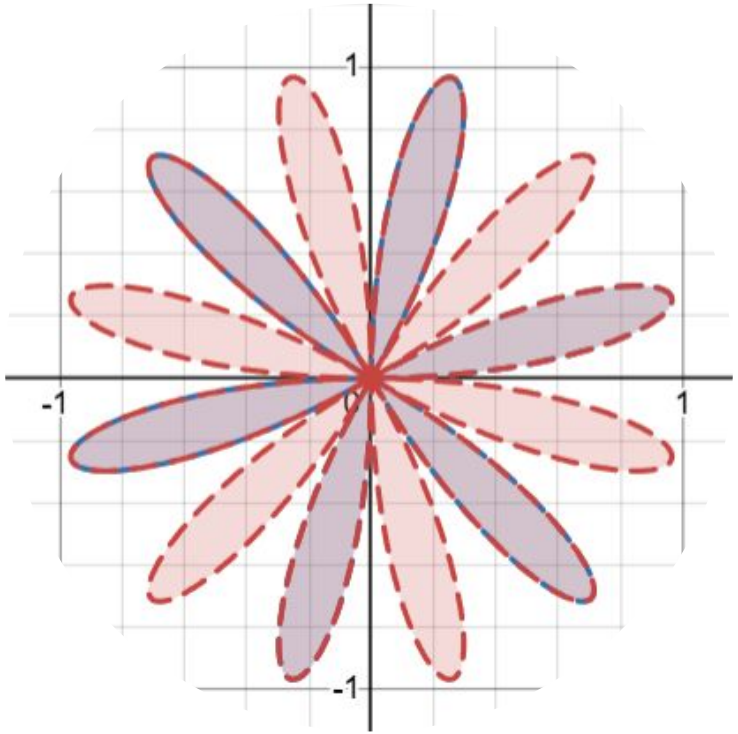
Academic Consultant CIET, NCERT

Desmos: A New Way to See Math

01 Desmos provides powerful graphing calculator capabilities

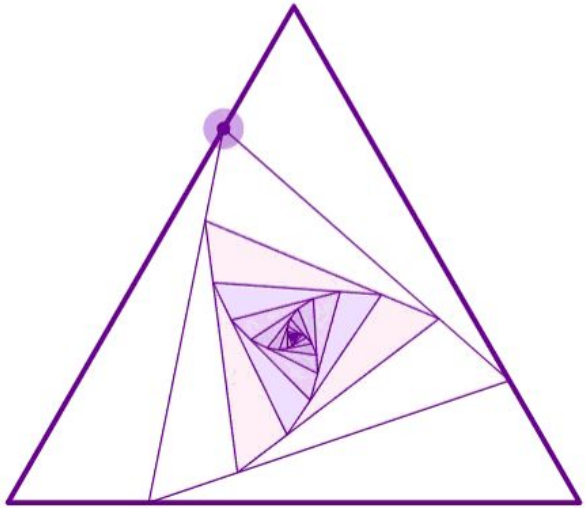
02 See math in a new way with Desmos tools



03 Explore mathematical functions with ease using Desmos

04 Desmos is available as a web and mobile application

Introducing Desmos



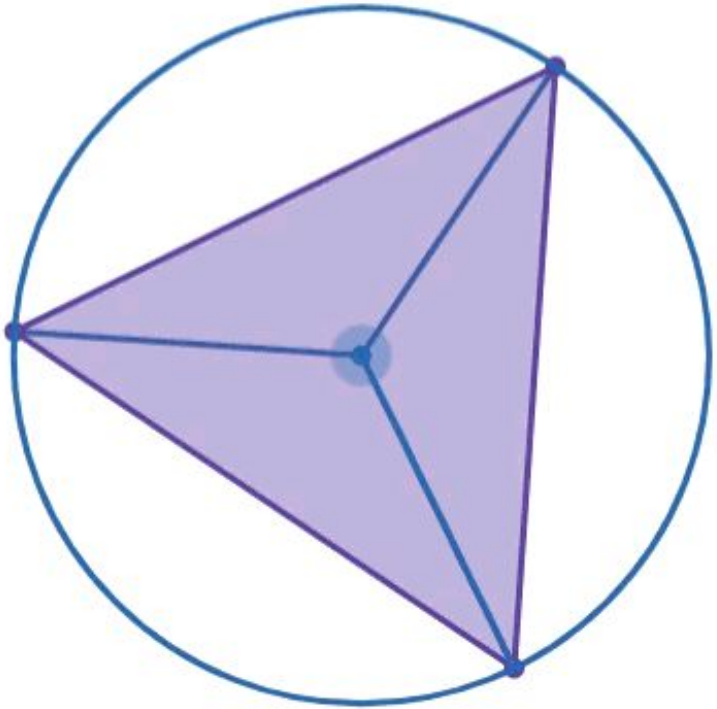
- Desmos: an advanced online graphing calculator
- Makes learning math visual and interactive
- Completely free and accessible to everyone
- New way to explore the world of numbers

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

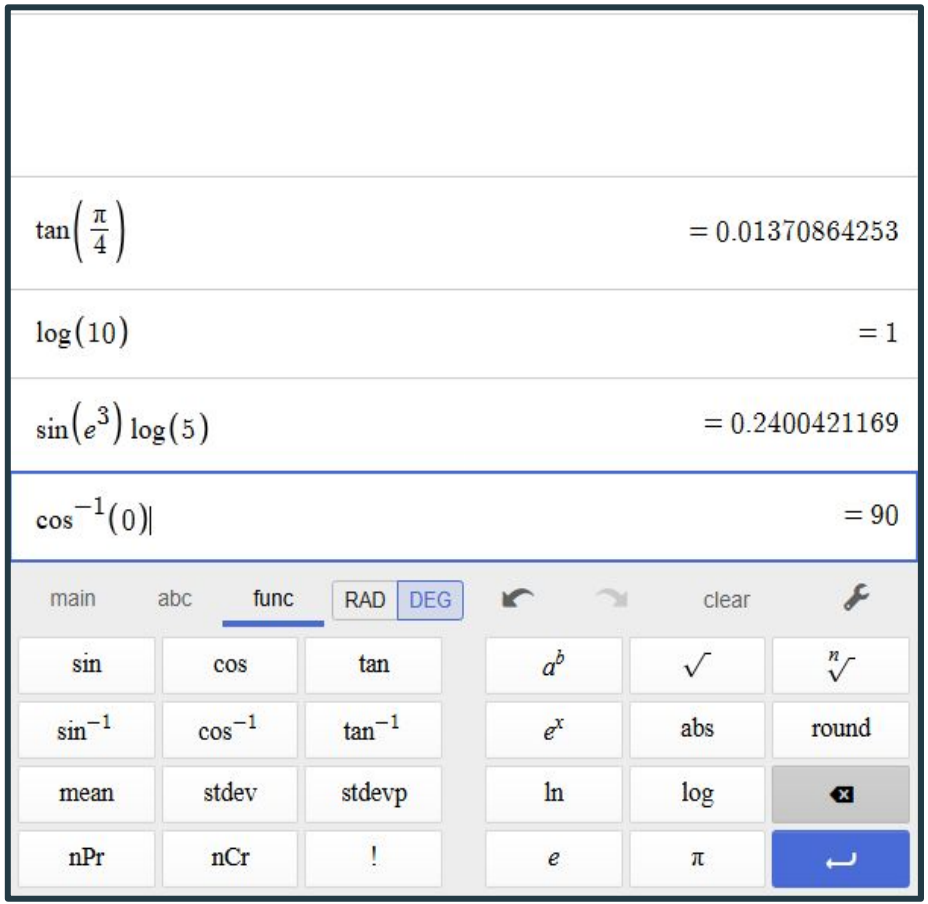
- Graphing Calculator for advanced visualizations
- Scientific Calculator for complex equations
- Four Function Calculator for basic arithmetic
- Matrix Calculator for linear algebra problems
- Geometry Tool for interactive geometric constructions
- 3D Calculator for three-dimensional graphing

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

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

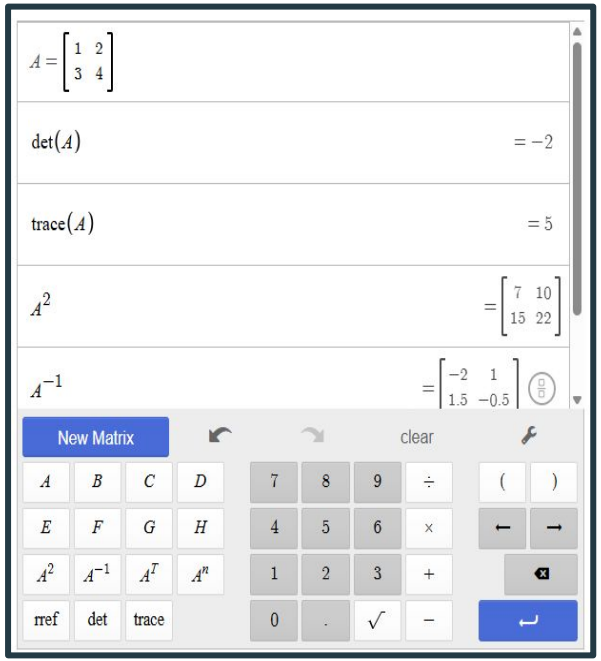
Matrix Calculator: Overview

01 Create and manipulate matrices of any size

02 Easily create and manipulate matrices of any size

03 Perform essential matrix operations: Addition and Subtraction

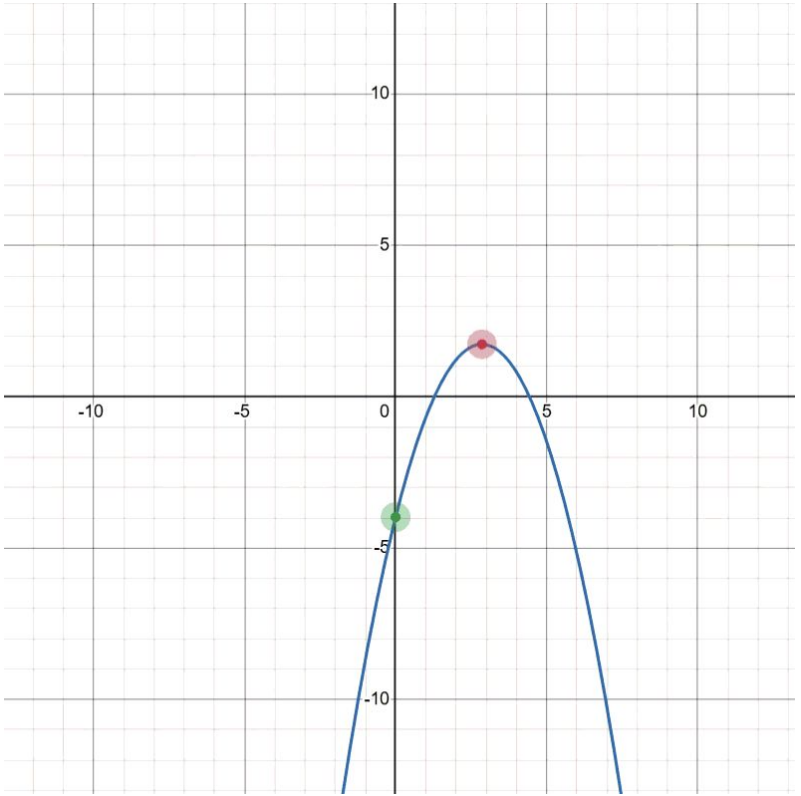
04 Find determinants, inverses, and RREF efficiently

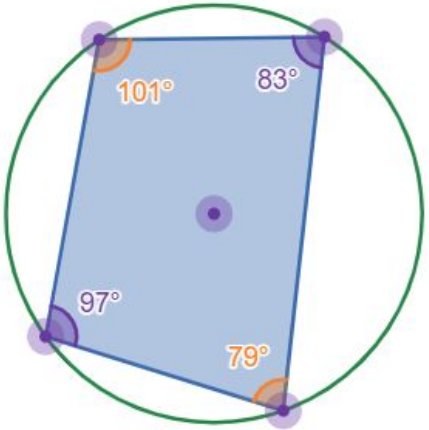


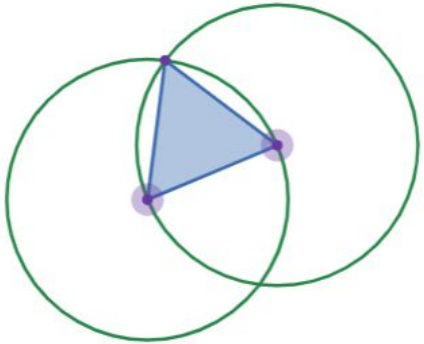
Graphing Calculator in Action

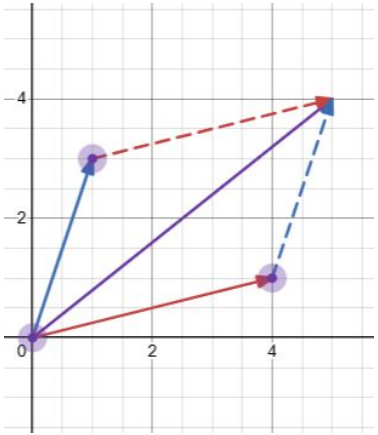
- Write the equation $y = ax^2 + bx + c$
- Use sliders for *a, b*, and *c*
- Demonstrate how the parabola changes
- Point out the vertex and axis of symmetry

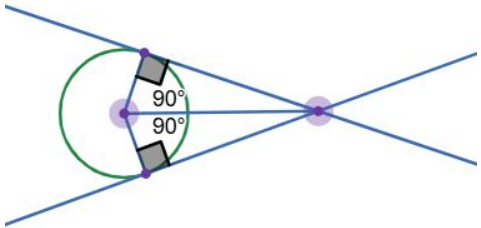
- "*a*" determines the parabola's shape
- Positive "*a*" opens the parabola upwards
- Negative "*a*" opens the parabola downwards
- "*c*" moves the parabola vertically on the y-axis
- "*b*" moves the parabola horizontally









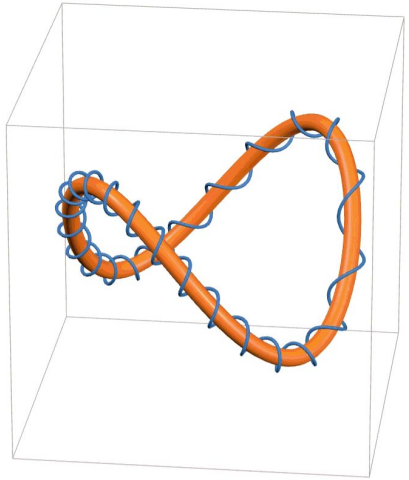


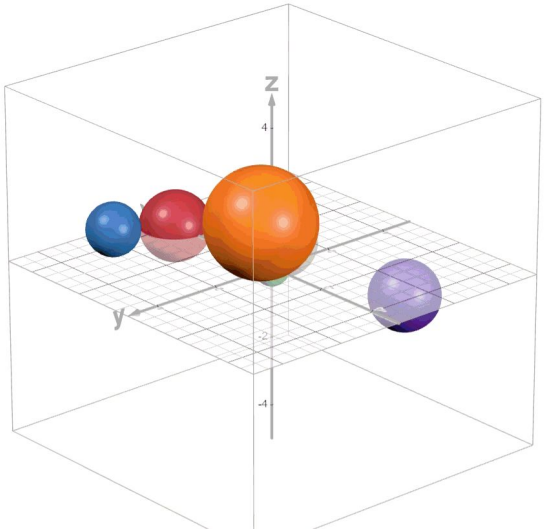
Geometry Tool: Overview

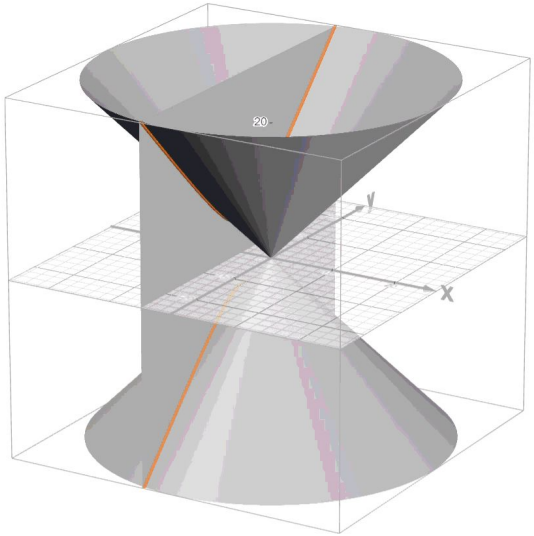
- Explore shapes, proofs, and transformations dynamically
- Construct points, lines, circles, and polygons
- Apply rotations, reflections, and translations
- Measure angles, lengths, and areas precisely
- Visualize and understand geometric theorems

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:

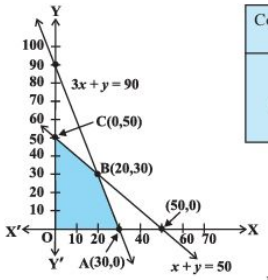
$x + y \leq 50$ ... (2)

$3x + y \leq 90$ ... (3)

$x \geq 0, y \geq 0$ ... (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.

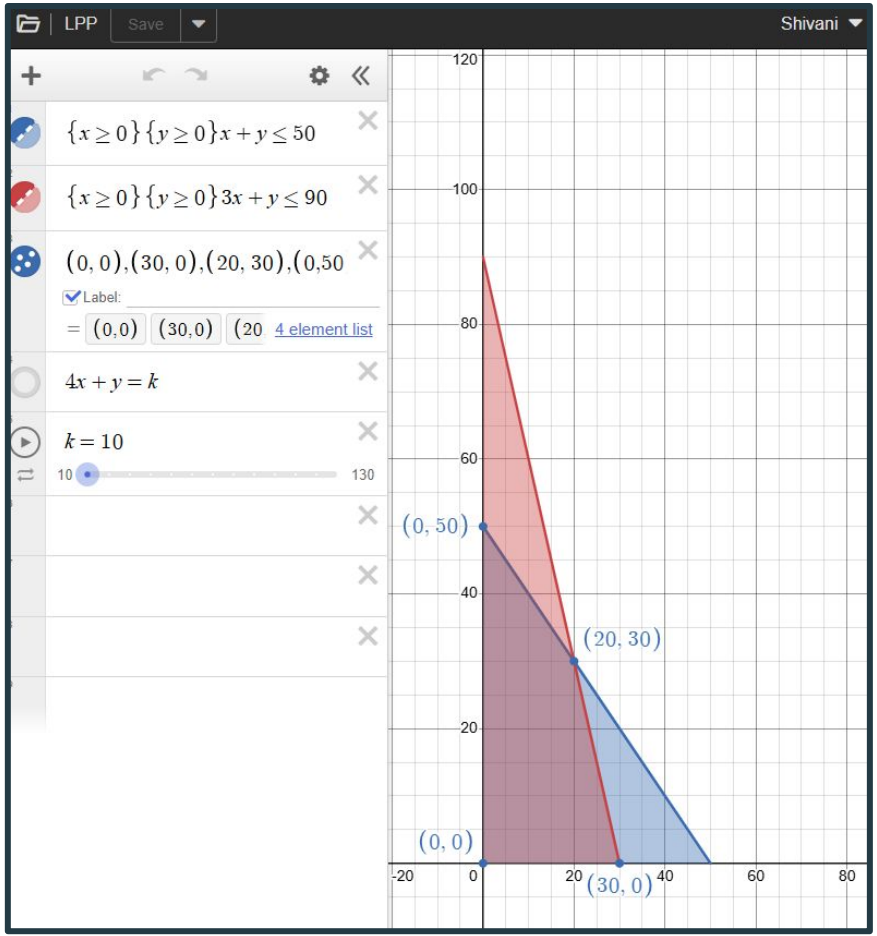
The coordinates of the corner points O, A, B and C are (0, 0), (30, 0), (20, 30) and (0, 50) respectively. Now we evaluate Z at each corner point.



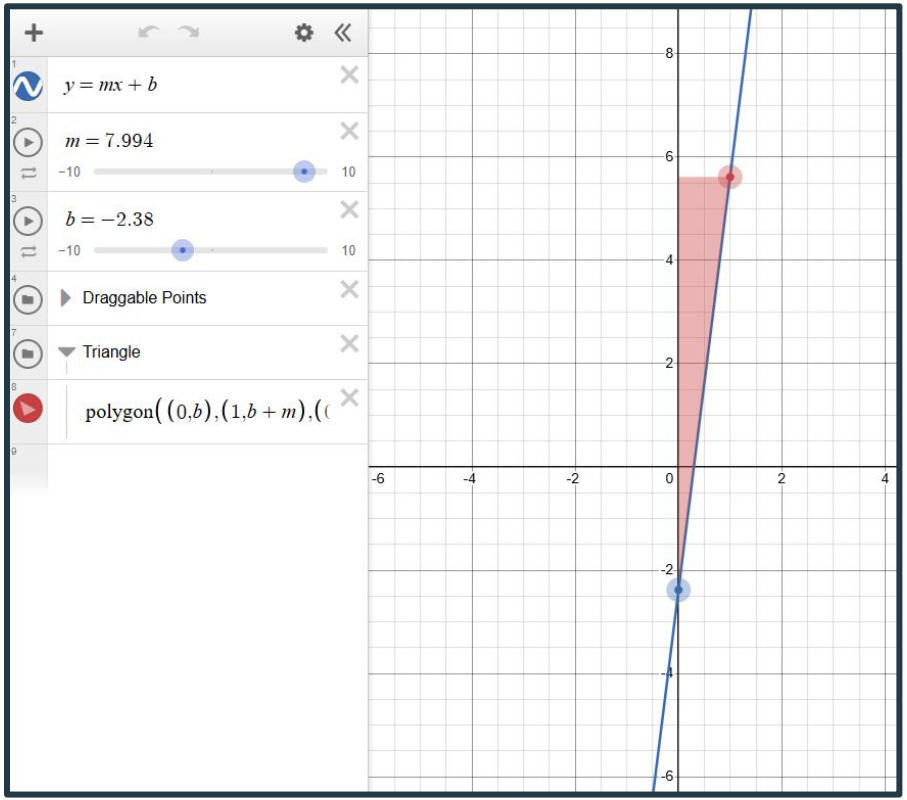
Corner Point	Corresponding value of Z	
(0, 0)	0	
(30, 0)	**120** ←	Maximum
(20, 30)	110	
(0, 50)	50	

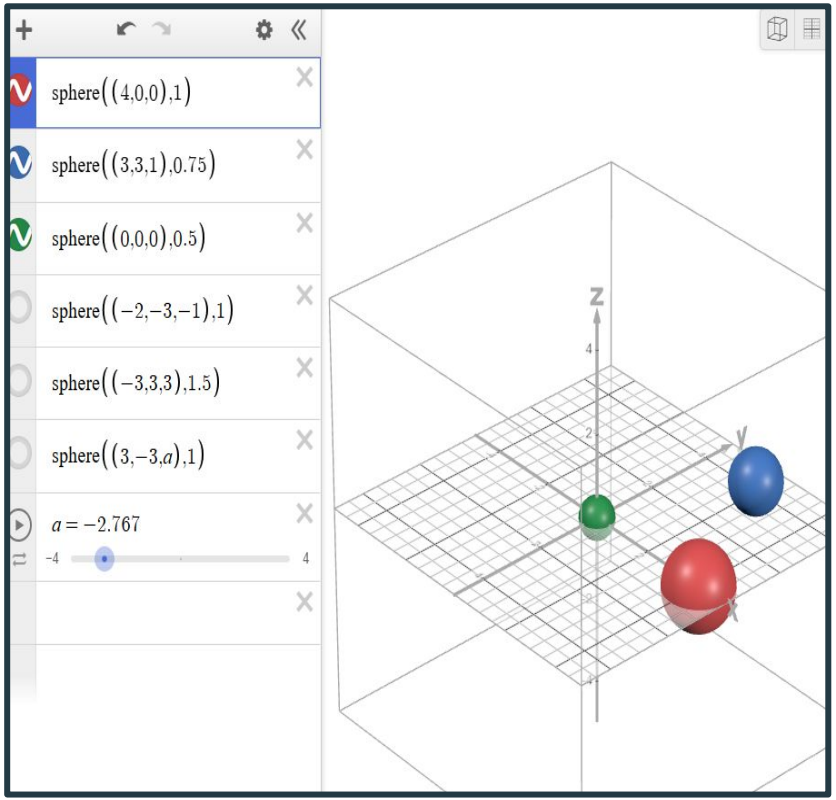
Fig 12.2

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

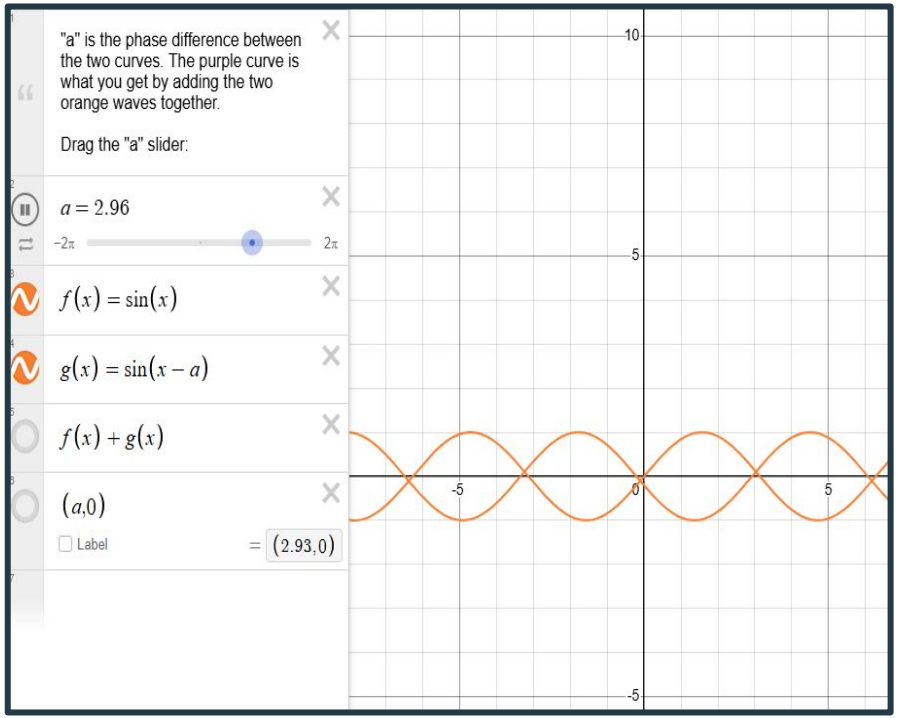


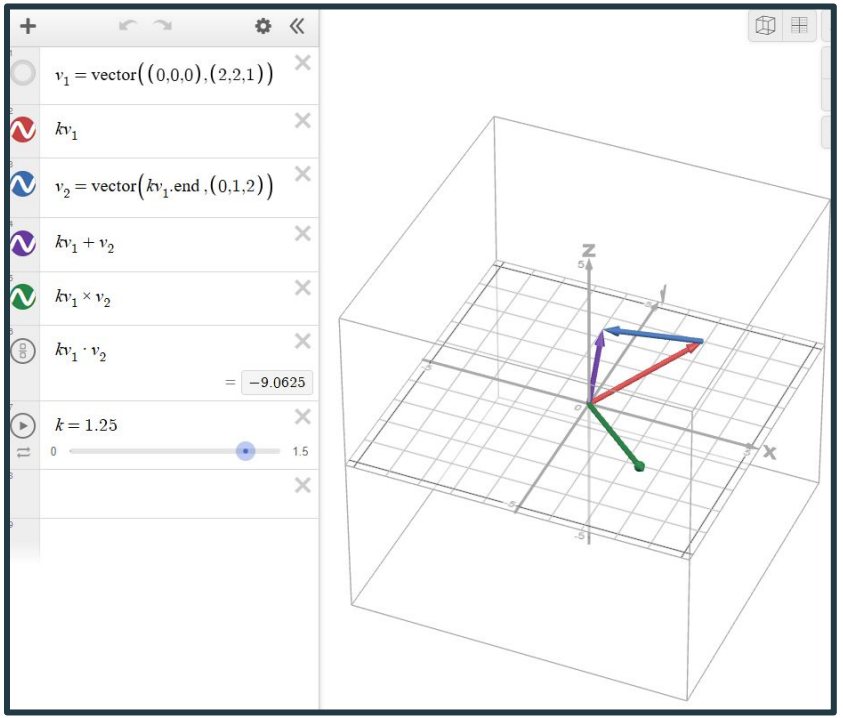
Some Examples





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!