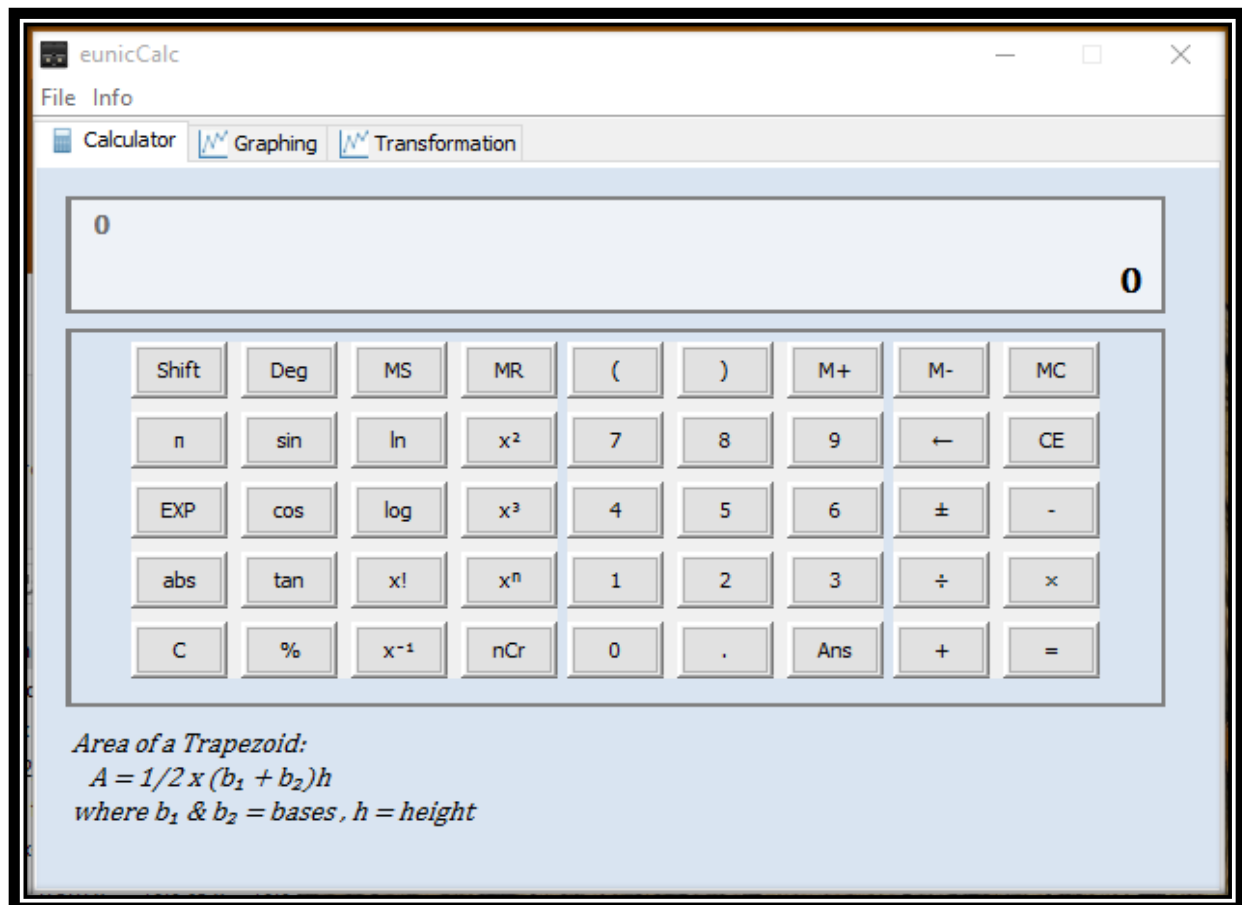


eunicCalc

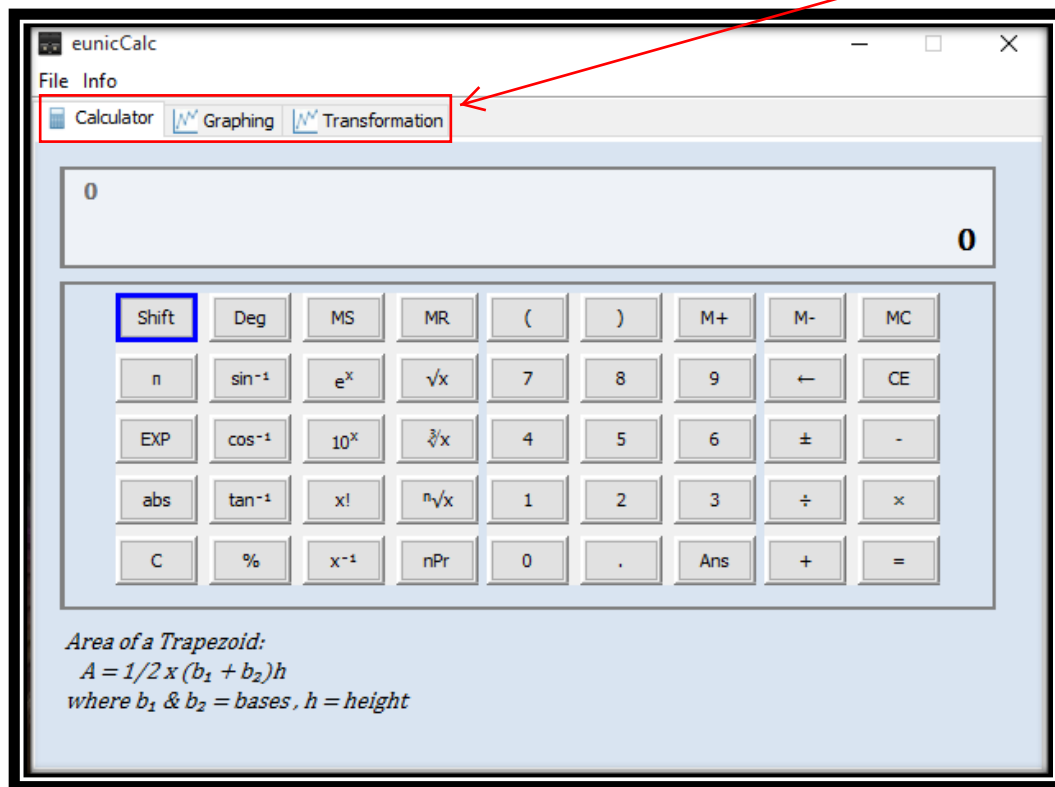


ABOUT

eunicCalc is a desktop calculator application with graphing capabilities.

It has three tabs/parts: **Calculator**, **Graphing** and **Transformation**.

The calculator tabs



The **Calculator** tab is for simple and scientific calculations.

The **Graphing** tab is for plotting simple line graphs and complex quadratic and trigonometric curves.

The **Transformation** tab is for drawing shapes and subjecting them to transformations as reflection, scaling, rotation, translation and shearing.

The calculator is designed and written by Nelson M. Odhiambo

Email Address: eunicson@gmail.com

SYSTEM REQUIREMENTS

eunicCalc is written in the java programming language.

It requires the following to run:

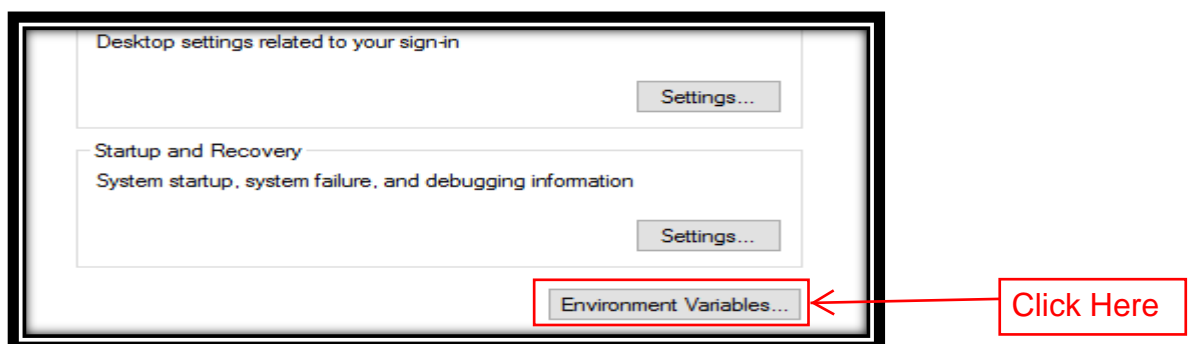
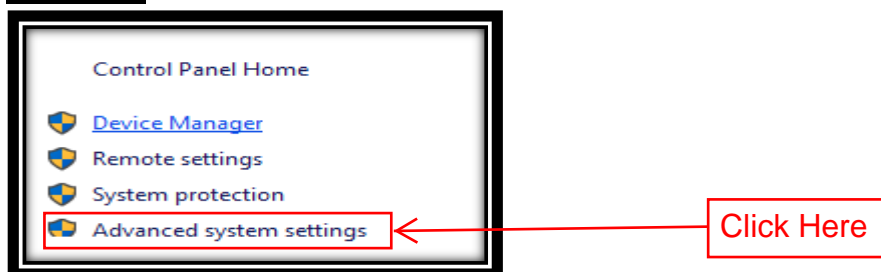
1. Sun Java Runtime Environment (JRE) version 1.7 or higher. (To be downloaded and installed if not yet).
2. Setting the PATH Environment Variable.

SETTING THE PATH ENVIRONMENT VARIABLE

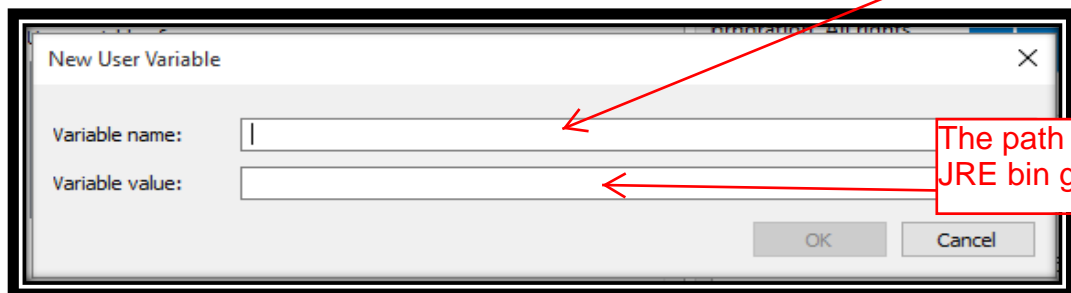
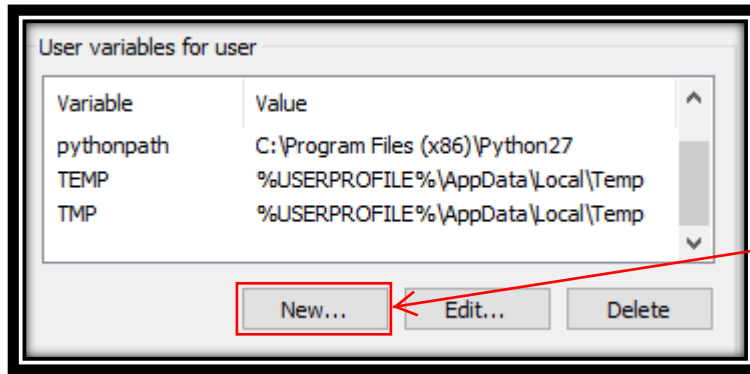
Setting the path environment variable is a system configuration to enable your computer to run an application; in this case a java application.

If your computer is not already set to run java applications follow the following steps

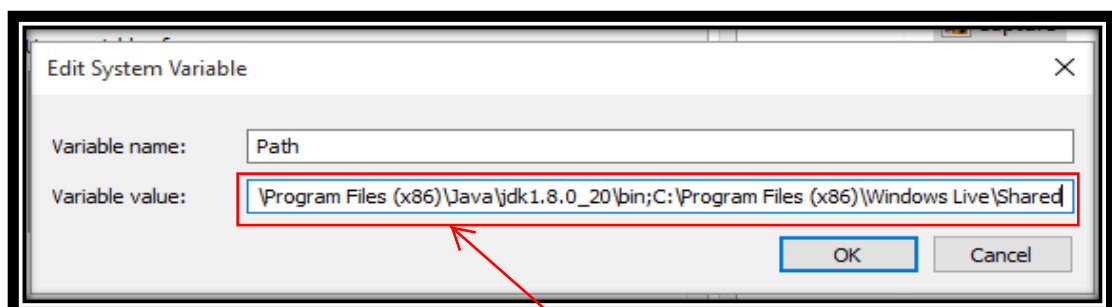
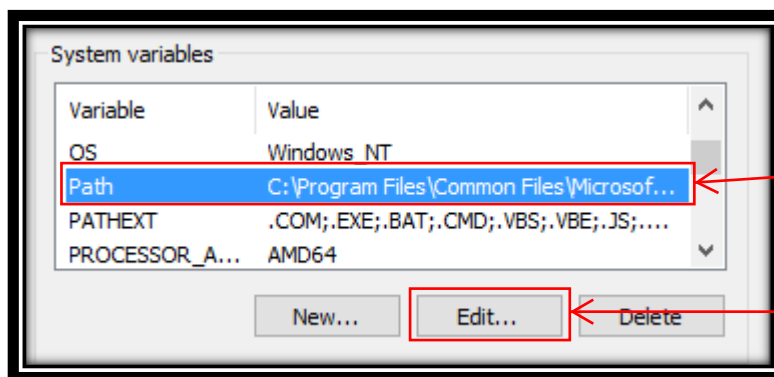
1. Right-click on the **Computer** icon and select **properties**.
2. On the opened window select **Advanced system settings** and select **Environment Variables**.



3. Under **User variables** select **New..** and add a new variable with the **Variable name** 'PATH' and the **Variable value** being the path to the JRE bin e.g. C:\Program Files (x86)\Java\jre1.8.0_20\bin. Press ok.



4. Under **System variables** select variable 'Path' and press **Edit...**. In the value field add a semi-colon at the end of the **Variable value** there and add the path to the JRE as above. **Don't delete** the value in this field just add the path at the end of the values already there.



HOW TO USE

eunicCalc requires no installation after downloading.

Create a folder on the desktop with the name “**Graphs**”.

In this folder create two sub-folders “**Graphing**” and “**Transformations**”. These folders will hold saved figures from the Graphing tab and Transformation Tab respectively. The figures can be kept for future reference or for printing.

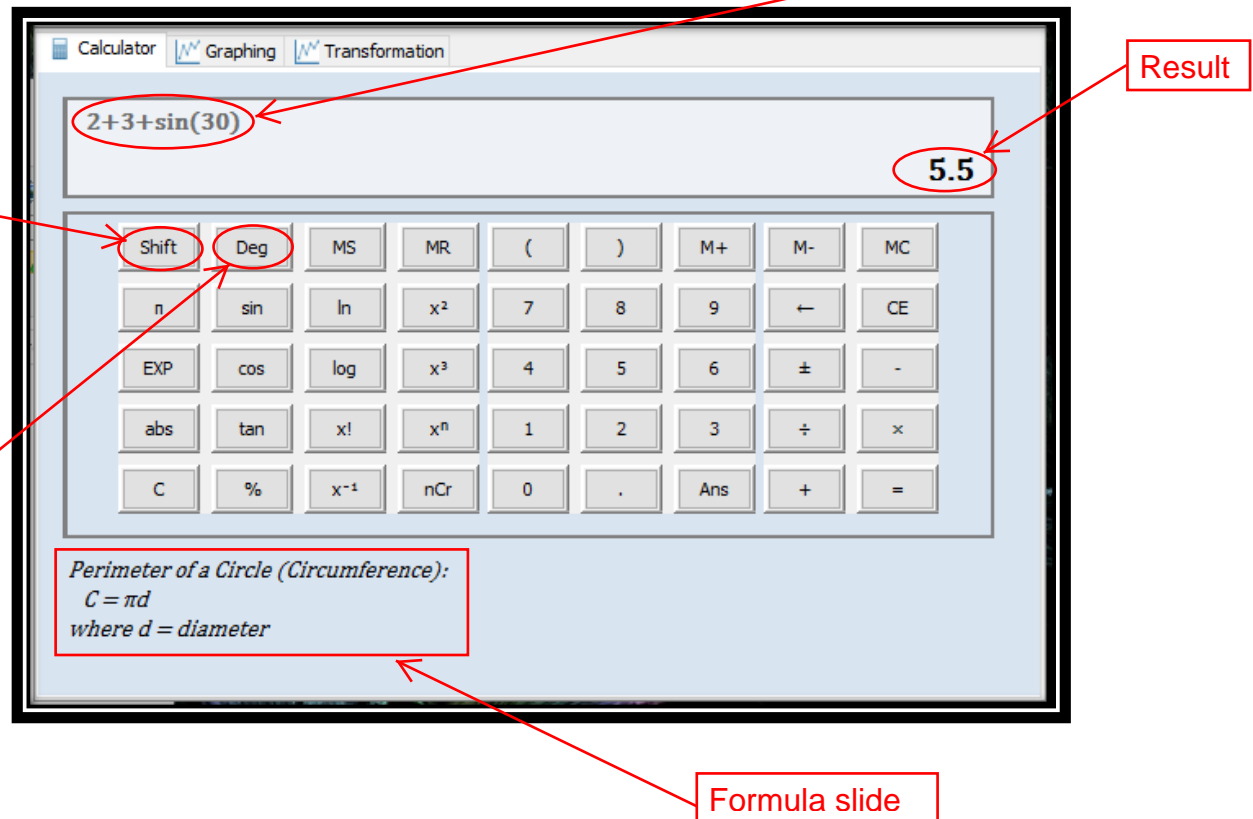
Calculator tab

The **Calculator tab** is straight forward and it supports almost all functions.

The “**Shift**” key is for shifting between functions e.g. the sine and sine inverse, square and square root etc.

The “**Deg**” key is for shifting between degrees and radians.

Use either the program buttons or the keyboard keys to key in values.



At the lower part of the **Calculator tab** is a slide show of common mathematical formulae

Graphing tab

The **Graphing tab** is for plotting graphs for line(e.g. $x+1$), quadratic(e.g. x^2+2x-2) and trigonometric(e.g. $\sin(2x+30)$) functions.

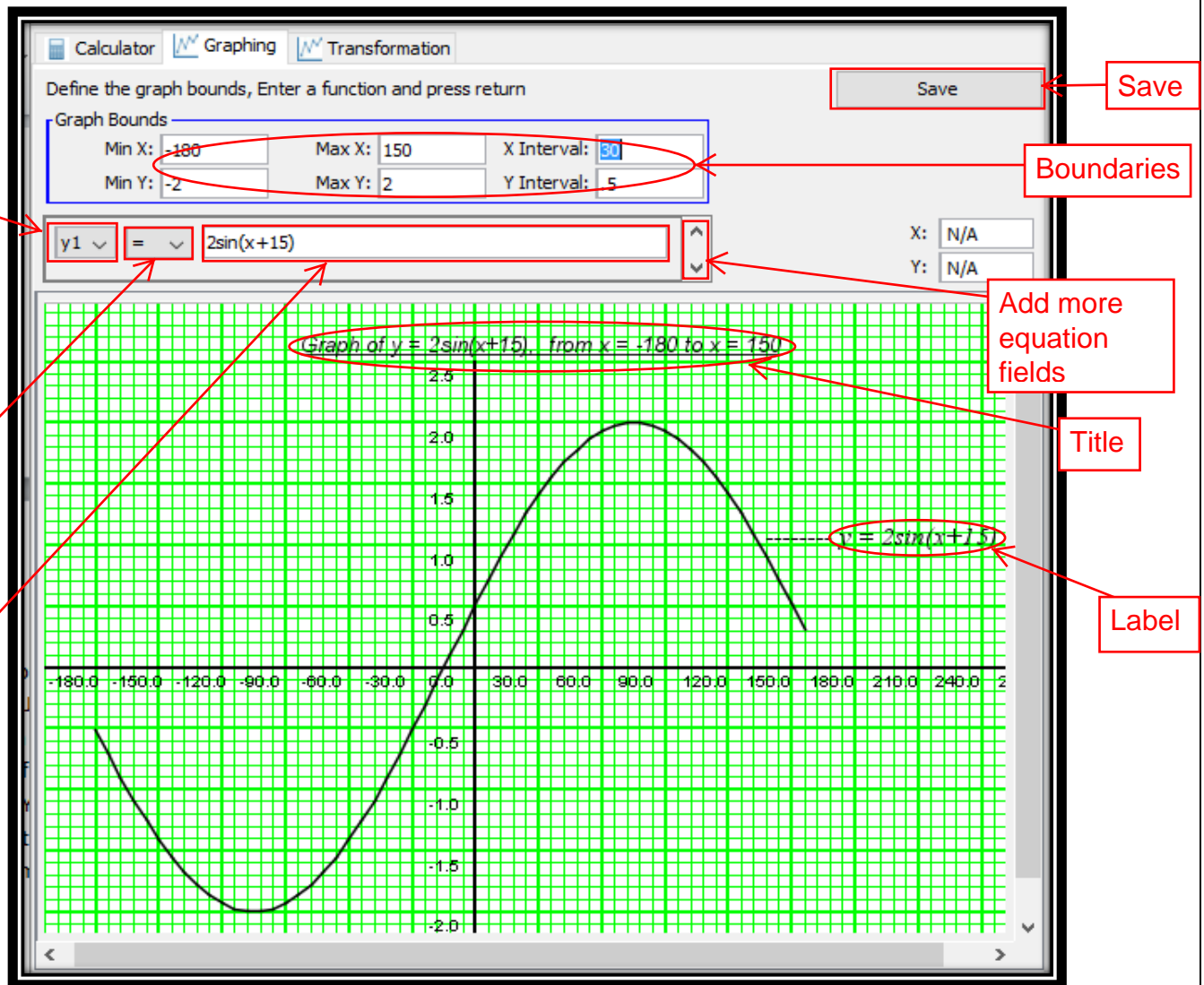
- ❖ Define you graph boundaries i.e. the minimum x value, the maximum x value, the minimum y value and the maximum y value.
- ❖ Define the intervals/scales for both x and y axes.
- ❖ Select the subject(x or y) of your equation, select the sign ($=, <, >$ etc.) enter your equation and press enter/ tab.

You can add more equations by using the up and down arrows provided on the equation area.

All the equations will be drawn and changing the bounds will just modify the curves as per your requirements.

Select **save** to save the graph.

You can view the table of values or graph from the **File**



Transformation tab

The **Transformation tab** is for drawing shapes and carrying out transformations on them.

- ❖ Define the boundaries of your graph first.
- ❖ Enter your coordinates separated by a comma without any spaces e.g. for A enter 2,3 in the field(2 is the x coordinate and 3 is the y coordinate of that point).
- ❖ Enter the other coordinates in their fields and press **Draw** to plot the shape.
- ❖ Under “**Chose Type**” choose the type of transformation you want, define the parameters and press ok.

You can carry out multiple transformations on both the original and the resulting shapes. Under the parameters window select the shape to work on based on the numbers in the middle of the shapes.

The **Draw** button clears out the transformed shapes leaving the original shapes while the **Clear** button clears out everything. Redefining the bounds does not affect your work. Remember to click **Save** if need be.

The screenshot shows the 'Transformation' window of a graphing application. The interface includes a 'Graph Bounds' section with input fields for Min X, Max X, X Interval, Min Y, Max Y, and Y Interval. Below this are coordinate input fields for points A, B, C, and D. A 'Choose Type' dropdown menu is set to 'Reflection'. On the right, there are 'Save', 'Clear', and 'Draw' buttons. The main area is a coordinate grid with two triangles plotted. The top triangle is labeled '1' and the bottom triangle is labeled '2'. A red oval highlights the coordinate labels for the top triangle: A1 (2.0, 2.0), B1 (3.0, 6.0), C1 (5.0, 1.0), A2 (-2.0, -2.0), B2 (-6.0, -3.0), and C2 (-1.0, -5.0). Red arrows point from text boxes to various parts of the interface: 'actions' points to the Save, Clear, and Draw buttons; 'coordinates' points to the coordinate input fields; 'Transformation type' points to the Choose Type dropdown; 'Add more coordinates fields' points to the up/down arrow buttons; 'Shape number' points to the number '1' on the top triangle; and 'Coordinates of shapes' points to the coordinate labels for the top triangle.

actions

Save

Clear

Draw

coordinates

Graph Bounds

Min X: -15 Max X: 10.0 X Interval: 2

Min Y: -10.0 Max Y: 10.0 Y Interval: 2

A: 2,2 B: 3,6 C: 5,1 D:

Choose Type

Reflection

Coordinates of shapes

A1 (2.0, 2.0) B1 (3.0, 6.0) C1 (5.0, 1.0)

A2 (-2.0, -2.0) B2 (-6.0, -3.0) C2 (-1.0, -5.0)

Transformation type

Add more coordinates fields

Shape number

Dedication

eunicCalc is dedicated to **Miss Eunice Anyango** - a mother, a friend, a heroine.