# IBMYP Algebra II & Trigonometry Desmos Masterpiece Project

You will need to create an account at www.desmos.com so you can SAVE your picture as you go. The title of your saved project must include your full name (Ex: Cindy Edwards: Yoda Masterpiece) . You are to create an ORIGINAL picture using translated graphs of the function families in DESMOS. **You DO NOT need to use the entire function, but you can use pieces of functions!!** ☺ For example, if you are creating a picture of a house (this would likely be a very basic picture and not score well), you might want to use an upside down absolute value function for the roof. The roof would not extend infinitely, so you would only need part of the function, which means you need to restrict the domain. That part of your picture might look like this:

Roof of the house: Absolute Value Function
$f(x) = \frac{-1}{2}|x - 7| + 10$ {3< x< 10}

You have given me the function you used, which part of the function you used, and what part it plays in the overall picture.
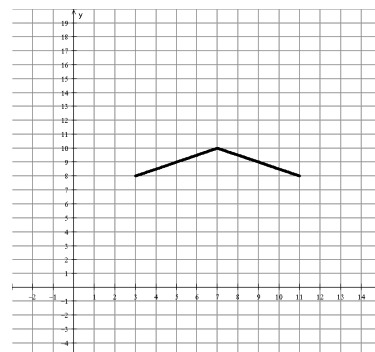
Assessment Requirements:

- You will submit your progress through a google form/survey posted in SCHOOLOGY to be viewed on three occasions (phases) and **count as a 20 point Minor Assessment each phase.** See the DUE DATES below. The link to your final masterpiece **(worth a 100 point Major Assessment)** will be submitted in SCHOOLOGY along with your reflection, which will be the first grade of the 4th quarter.
- You must use all 10 function families members that we have been learning all year. The primary focus of this project is to understand the 10 parent functions and their transformations!
- You may also include individual points, shading, and relations which are not one of the Function Family members, such as vertical lines, circles, or advanced graphs that exceed our unit of study.
- You must have a MINIMUM of 20 equations and have at least one ANIMATION.
- You may use background pictures found on the internet, but they must be turned off upon submission.
- You must use at least:
  - 5 horizontal translations
  - 5 vertical translations
  - 5 reflections
  - 5 vertical stretches or compressions
  - 5 functions that combine multiple translations/stretches/compressions/reflections (if you have more than 2 of these, I will count them toward the requirements above).
- You must create descriptive folders to keep your equations neat and organized! *Ex: a folder titled SUN would contain all of the equations of the functions that create the sun!*
- You must also create a **Function Family** Folder at the top which will contain each of the 10 required functions by name. You will have a descriptive line, such as absolute value, and on the line underneath, you would put an equation of an absolute value function.
- Finally, you will write a 1-2 page written reflection about your experience in creating this assessment, including the inspiration for your picture, challenges that you had in creating your picture, and what you took away from the experience.

Due Dates: All due dates are set and must be submitted BEFORE class on the dates below!

Phase 1: Quarter 2 - Due on or before your class on or <u>**January 14 (A)** and **15 (B)**</u>: Fill out the survey POSTED ON SCHOOLOGY!
Phase 2: Quarter 3: Due on or before <u>**February 24 (A)** and **25 (B)**</u>: Fill out the survey again so I can see your progress.
Phase 3: Quarter 3: Due on or before <u>**March 24 (A)** and **25 (B)**</u> : Fill out the survey again so I can give you my final input.
FINAL PROJECT: Quarter 4: Due on or before <u>**April 28 (A)**</u> and <u>**April 29 (B)**</u>

IBMYP Algebra II & Trigonometry Desmos Masterpiece RUBRIC

Final Masterpiece: Due on or before <u>April 28 (A) and April 29 (B):</u> Use the link in Schoology to submit/ attach your reflection paper. You must paste the link to your final masterpiece at the top of your google document in SCHOOLOGY.

A picture similar or the same as another project found on the internet is plagiarism and cannot be graded.

Each category in the rubric will be assessed. The average score will determine your grade. 5=A, 4=B. 3 = C, 2 = D, 1 = E

	EXCEEDING (5)	MEETING (4)	APPROACHING (3)	BEGINNING (2)	NO EVIDENCE (1)
Graphs of Function Families ❏ Identity ❏ Absolute Value ❏ Square ❏ Cubic ❏ Square Root ❏ Greatest Int. ❏ Reciprocal ❏ Exponential ❏ Logarithmic ❏ Sine ❏ Addl. Relations	Uses all 10 of the function families, and uses additional functions/relations that are beyond this unit of study. Picture is complex and includes animation. The picture is ORIGINAL with no evidence of a similar picture found on the internet.	Follows all directions as specified. Functions are all correct, neatly graphed and labeled, but **only 7-9 FF are used.** No evidence of a similar picture is found online.	Effort is made to complete the picture, but **only 5-6 FF are used.** A similar picture may be seen online, but the equations are not identical.	Effort is made to complete the picture, but **only 3-4 FF are used.** A similar picture may be seen online, but the equations are not identical.	Little or no effort to follow the requirements of the project. **Only 1-2 FF are used.**
Equations of Functions *See below:* ***ORGANIZATION** Title project with full name followed by a unique short title Put all equations inside the appropriate descriptive Folders Turn on all animations and turn off background pictures	All equations are organized and **accurately** labeled in folders, including the transformations and restraints on the domain and/or range. There is a Function Family folder at the top with the highlighted function types Equations are labeled as to what part they play in the picture.	All equations are stated properly, including the transformations. Restraints on the domain and/or range are given and are **mostly accurate.** The picture is reproducible by the teacher, but may require some effort. Equations are labeled as to what part they play in the picture.	Effort is made to state the equations, but **some are incorrect.** Restraints on the domain and/or range are incorrect or are only given for some of the equations. Equations are labeled as to what part they play in the picture.	Effort is made to state the equations, but **many are incorrect** and do not state the restricted domains. The picture is unable to be reproduced. Equations are **not** labeled as to what part they play in the picture.	Little or no effort to follow the requirements of the project.
Written Reflection MUST include the link to your final masterpiece at the top of the Google Doc.	The written work **CLEARLY** explains the student's **inspiration** for the project, the mathematical thought processes used to generate the equations, and overall what the student has **learned** from his/her experience.	The written work explains the inspiration for the project and what the student learned from the experience. A student who does not **clearly** explain the <u>mathematics</u> behind his/her thought process in generating the equations used cannot reach the EXCEEDING level.	The written work explains the inspiration for the project and what the student learned from the experience. No indication of how the student determined the equations used is mentioned.	The written work is **minimal** and provides little to no explanation or justification of the project.	Little or no effort to follow the requirements of the project.