# Algebra II Honors - Conic Sections Graphing Project 40 points 

DUE: WEDNESDAY 5/25(A) and 5/26(B)
Task: Using the website https://www.desmos.com/ create a picture using conic sections and any other graphs you desire.

Directions:

- Go to https://www.desmos.com/ and create an account.
- Create a picture using at least one of each of the Conics Sections listed:
- Parabola - both forms: $(x-h)^{2}=4 p(y-k)$ AND $(y-k)^{2}=4 p(x-h)$
- Circle
- Ellipse
- Hyperbola- both forms: $\frac{(x-h)^{2}}{a^{2}}-\frac{(y-k)^{2}}{b^{2}}=1$ AND $\frac{(y-k)^{2}}{a^{2}}-\frac{(x-h)^{2}}{b^{2}}=1$
**Bottom Line: Your picture must contain at least SIX equations.
You may, but are not required to, also use:
- Linear functions
- Absolute Value functions
- Polynomial functions
- Square Root/Cube Root Functions
- Exponential/Logarithmic Functions
- Semicircle Functions
- Trigonometric Functions
- Any other function from the Library of Functions
*You may need to restrict the domain or range of each curve to create your desired picture.*
- Print your project from desmos.com. HIGHLIGHT the 6 required equations.
- Display your project (PICTURE AND ALL EQUATIONS) in a creative fashion on a $14^{\prime \prime}$ by $22^{\prime \prime}$ poster board (half a typical poster board). Make sure to put your name on the FRONT of your project.
- PRINT 1 Copy of "Conics Project Rubric." (see page 2 below) - DO NOT FILL OUT!
- PRINT 2 Copies of the Peer Review WKST (see page 3 below) - DO NOT FILL OUT!
*EEvery element in your picture must be represented by an equation.**
**Have fun and be creative! Up to 5 bonus points will be awarded to those students who go above and beyond.**


## Conics Project Rubric

Name: $\qquad$
I. Mandatory Requirements
a. Parabola

| $(x-h)^{2}=4 p(y-k)$ |  |
| :--- | ---: |
| $(y-k)^{2}=4 p(x-h)$ |  |

b. Circle

$$
(x-h)^{2}+(y-k)^{2}=r^{2}
$$

c. Ellipse

$$
\begin{gathered}
\frac{(x-h)^{2}}{a^{2}}+\frac{(y-k)^{2}}{b^{2}}=r^{2} \\
\text { or } \\
\frac{(x-h)^{2}}{b^{2}}+\frac{(y-k)^{2}}{a^{2}}=r^{2}
\end{gathered}
$$

d. Hyperbola

$$
\begin{array}{|l|l|}
\hline \frac{(x-h)^{2}}{a^{2}}-\frac{(y-k)^{2}}{b^{2}}=1 & \\
\hline \frac{(y-k)^{2}}{a^{2}}-\frac{(x-h)^{2}}{b^{2}}=1 & \square / 4 \\
\hline
\end{array}
$$

II. Aesthetic Nature

[^0]
## Project Completed By: <br> Evaluator's Name:

## Requirements

Did the student include at least one of each required conic section? Are the equations graphed accurately? (Check yes or no.)

|  | YES | NO |
| :--- | :--- | :--- |
| Parabola: |  |  |
| $(x-h)^{2}=4 p(y-k)$ |  |  |
| Parabola: |  |  |
| $(y-k)^{2}=4 p(x-h)$ |  |  |
| Circle |  |  |
| Ellipse |  |  |
| Hyperbola: <br> $\frac{(x-h)^{2}}{a^{2}}-\frac{(y-k)^{2}}{b^{2}}=1$ |  |  |
| Hyperbola: <br> $\frac{(y-k)^{2}}{a^{2}}-\frac{(x-h)^{2}}{b^{2}}=1$ |  |  |

Did the student include a domain for every equation listed? Are the domains accurate? Make comments below if the student has made an error.

## Aesthetic Nature

Comment with your opinion of the aesthetic nature of the project you are grading.

## Grader's Recommendations

Are there any revisions to be made to make this project better? How can the student improve their project to earn bonus points?

## Very Creative Examples

Side Note: These examples below may NOT include all the requirements of this project. These samples are purely for ideas ONLY!



[^0]:    III. Bonus Points

