**Algebra 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Conic Sections Project**

You will be creating a design using conic sections. You will be use 8 conic sections to create your design and adding other shapes/drawings to complete your design.

What you will turn in:

1. Your “skeleton” design. It will have *only* the conic sections which you will be required to find the equation of. On this skeleton you will label each conic section with:

* the appropriate number (1 – 8)
* the equation of the conic section

2. Your finished, “clean” copy of your design. It will have duplicates of your conic sections without the equations. You do not need to label equations because that should already be done on your skeleton copy. You should embellish your final copy. You can add additional drawings. You do *not* need to find the equations of any figure you add as an embellishment.

3. The equation chart which is attached. This is what will be graded the most closely. Be sure each conic section (1 – 8) in the chart corresponds correctly to how you labeled the conics in your skeleton copy. In this chart you will write the equation of the conic, critical attributes (center, radii, asymptotes, etc.), and restriction on the domain for the picture. Please keep this neat and organized!!!

Note that each of your conic sections needs to be unique. That means all 8 are different from each other and none them should be the same as any of the conic sections in your neighbor’s projects. Any student not doing their own 8 unique conics and completing the chart on their own will receive a 0. This applies to both students with duplicate conic sections, so don’t let your friend copy!!! You have *two* days to complete this project, so you have plenty of time to not cut corners and risk receiving a 0 on this project.

This project is due before you leave for spring break. The only exception is if you have an excused absence that day. If that is the case, you must turn it in at the beginning of class the first day after spring break. Being absent any day between now and then does not give you an extension on the project, so make sure you have it done.

Your project will be counted off 20 points for each day it is late.

Your project will be graded according to the following rubric:

|  |  |  |
| --- | --- | --- |
| Requirement | Points Earned | Points Possible |
| Your skeleton copy containing 8 conic sections in the same place they are shown in your final copy. Each conic section should be labeled with the following:   * Conic Number (1 – 8) * Equation |  | 16 |
| Your Final Copy needs to have the same 8 conic sections shown in your skeleton copy. They should be placed in the same spot you have placed them in your skeleton copy. You should also add any other figures or drawings you want to complete your design. To earn full points, you must show a GFE to turn in a quality project. (neat, colored, etc. ) |  | 14 |
| Your chart. For each conic you need to completely fill out a line in the chart. You need to identify the attributes requested  Each row is worth 5 points. |  | 40 |
| Total |  | 70 |

**Conic Sections**

|  |  |  |  |
| --- | --- | --- | --- |
|  | equation | attributes | Points received |
| 1. circle | restrictions \_\_\_\_\_\_\_\_\_\_\_\_ | center \_\_\_\_\_\_\_\_\_\_  radius \_\_\_\_\_\_\_\_\_\_\_ | /5 |
| 2. circle | restrictions \_\_\_\_\_\_\_\_\_\_\_\_ | center \_\_\_\_\_\_\_\_\_\_  radius \_\_\_\_\_\_\_\_\_\_\_ | /5 |
| 3. ellipse  (horizontal major axis) | restrictions \_\_\_\_\_\_\_\_\_\_\_\_ | center \_\_\_\_\_\_\_\_\_\_  rx \_\_\_\_\_\_ ry \_\_\_\_\_\_ | /5 |
| 4. ellipse  (vertical major axis) | restrictions \_\_\_\_\_\_\_\_\_\_\_\_ | center \_\_\_\_\_\_\_\_\_\_  rx \_\_\_\_\_\_ ry \_\_\_\_\_\_ | /5 |
| 5. hyperbola  (horizontal) | restrictions \_\_\_\_\_\_\_\_\_\_\_\_ | center \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  vertices \_\_\_\_\_\_\_\_\_\_\_\_\_\_  asymptotes \_\_\_\_\_\_\_\_\_\_\_ | /5 |
| 6. hyperbola  (vertical) | restrictions \_\_\_\_\_\_\_\_\_\_\_\_ | center \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  vertices \_\_\_\_\_\_\_\_\_\_\_\_\_\_  asymptotes \_\_\_\_\_\_\_\_\_\_\_ | /5 |
| 7. parabola  (opens left or right) | restrictions \_\_\_\_\_\_\_\_\_\_\_\_ | vertex \_\_\_\_\_\_\_\_\_\_\_\_  focus \_\_\_\_\_\_\_\_\_\_\_\_  directrix \_\_\_\_\_\_\_\_\_\_\_\_\_ | /5 |
| 8. parabola  (opens up or down) | restrictions \_\_\_\_\_\_\_\_\_\_\_\_ | vertex \_\_\_\_\_\_\_\_\_\_\_\_  focus \_\_\_\_\_\_\_\_\_\_\_\_  directrix \_\_\_\_\_\_\_\_\_\_\_\_\_ | /5 |
| Bonus conic |  |  | /5 |
| Total |  |  | /40 |