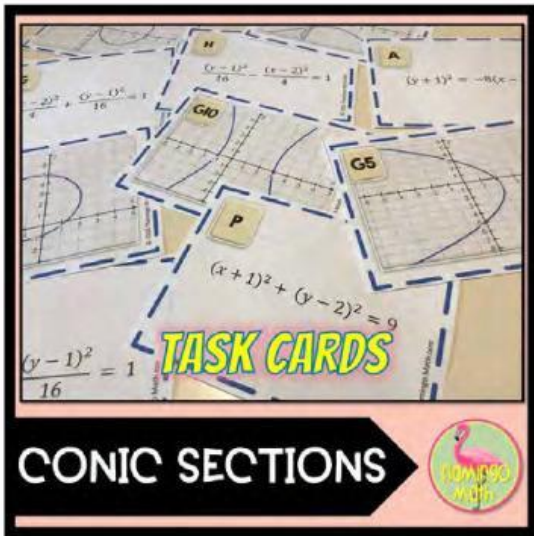


CONIC SECTIONS



Conic Sections Task Cards



OBJECTIVE

The objective is to sort the set of cards from conic sections into sets that share a common characteristic. Record answers on a sorting mat or on Post-It Notes. Then share between groups and/or in the whole group.

GOAL

Students reinforce their use and understanding of mathematical vocabulary of terms, properties, and characteristics. Students work independently, in pairs, or in small groups to sort objects into categories that have a common characteristic.

About The Product

CONIC SECTIONS SORT & MATCH TASK CARDS

In this activity, your Precalculus students can practice the vocabulary of conic sections while investigating similarities and differences in the properties of parabolas, ellipses, and hyperbolas.

The activity can be used in a variety of ways to aid learners in the understanding of key elements related to conics. It's best to use the graphs to sort first, then incorporate the equations to complete the matching portion of the exercise.

Preparation

1. Copy a student recording sheet for each group of students.
2. Copy task cards on card stock, cut apart, and laminate for durability.
3. Create sets for groups of 3 – 4 students and store in a plastic bag.

Sort & Match Conic Sections

OBJECTIVE: The objective is to sort the set of cards from conic sections into sets that share a common characteristic. Record answers on a sorting mat or on Post-It Notes. Then share between groups and/or in the whole group.

GOAL: Students reinforce their use and understanding of mathematics vocabulary of terms, properties, and characteristics. Students work independently, in pairs, or in small groups to sort objects into categories that have a common characteristic.

CLOSED SORT: Teacher determines the categories for the card sort.

Examples:

1. Using the graphs only, sort the given cards of conic sections into groups according to their shapes—parabolas, ellipses, or hyperbolas.
2. Using the equations only, sort the given cards according to their shapes.
3. Using graphs only, sort by horizontal or vertical axis characteristic.

OPEN SORT:

Students sort the cards into categories that they determine and name/describe themselves. The general rule for open sorts is to make groups containing at least 3 cards.

For example: Students might sort the conic section cards into categories that pass through the origin, conics that are oriented up or right, and down or left.

EXTENSION ACTIVITY:

Use a Matching Activity, first as a sort to help students categorize by properties, then use the cards to match those that represent the same things.



CONIC SECTIONS SORT & MATCH ACTIVITY

KEY FOR MATCHING:

1. F	9. P
2. C	10. L
3. N	11. D
4. K	12. H
5. A	13. B
6. G	14. J
7. I	15. O
8. M	16. E

**Conic Sections Equations
and Their Characteristics**

NAME _____

Match the graphs of the sixteen conic sections to their equations.

1. _____	5. _____	9. _____	13. _____
2. _____	6. _____	10. _____	14. _____
3. _____	7. _____	11. _____	15. _____
4. _____	8. _____	12. _____	16. _____

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**Conic Sections Equations
and Their Characteristics**

NAME _____

Match the graphs of the sixteen conic sections to their equations.

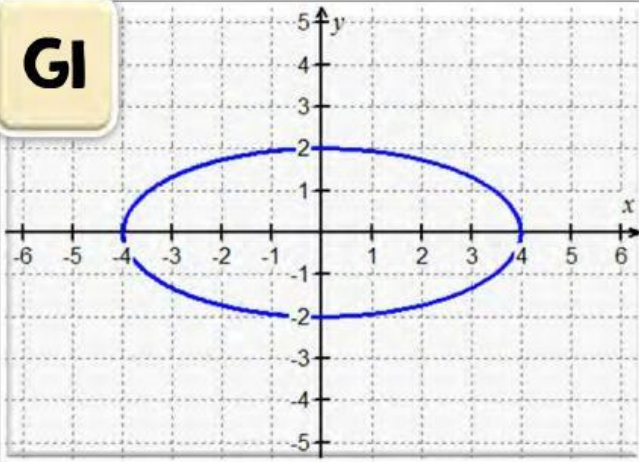
1. _____	5. _____	9. _____	13. _____
2. _____	6. _____	10. _____	14. _____
3. _____	7. _____	11. _____	15. _____
4. _____	8. _____	12. _____	16. _____

Conic Sections Equations and Their Characteristics

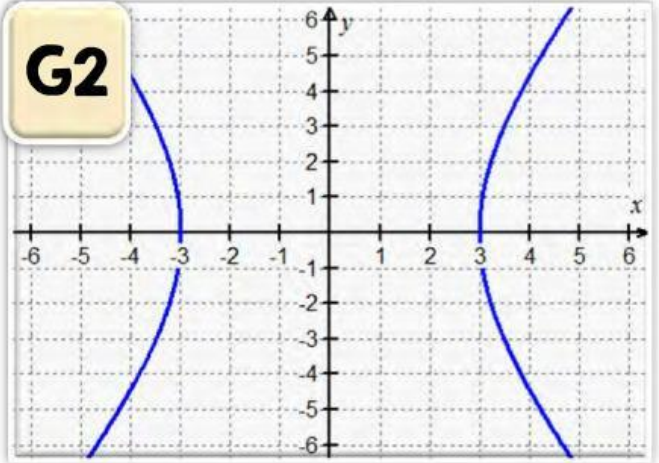
NAME _____ DATE _____

Use the given equations to make groups of at least three equations that have similar characteristics. Name or describe the characteristic.

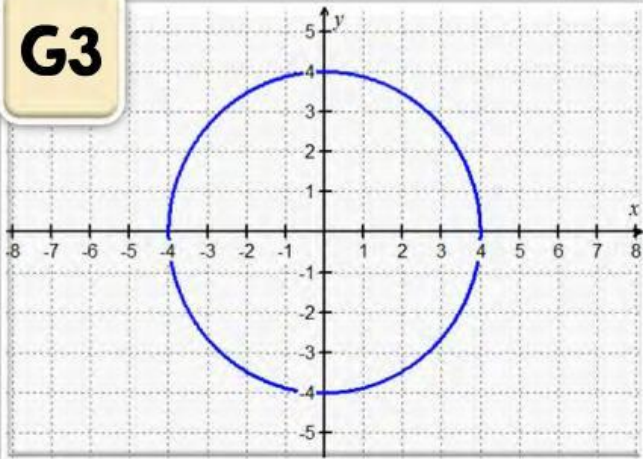
Characteristic :	Characteristic :	Characteristic :

G1

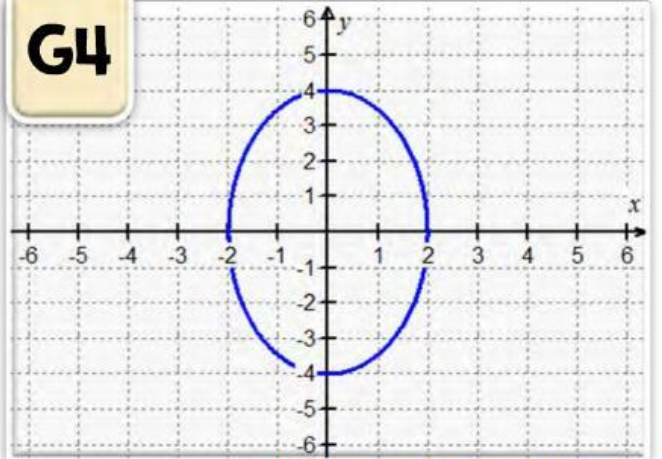
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G2

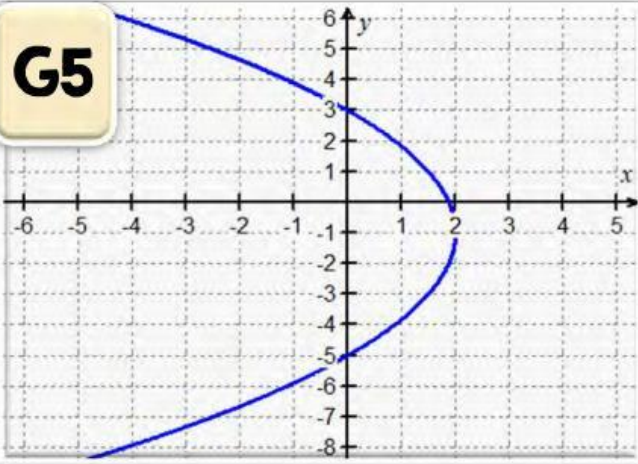
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G3

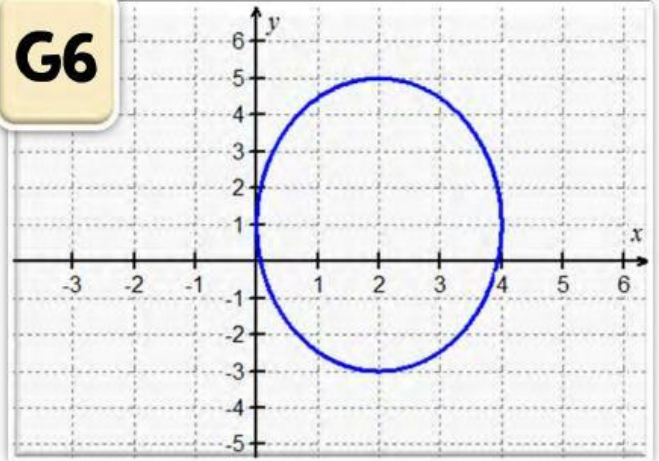
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G4

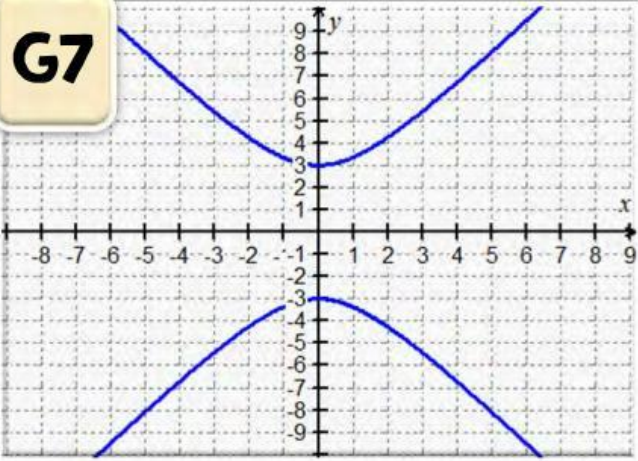
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G5

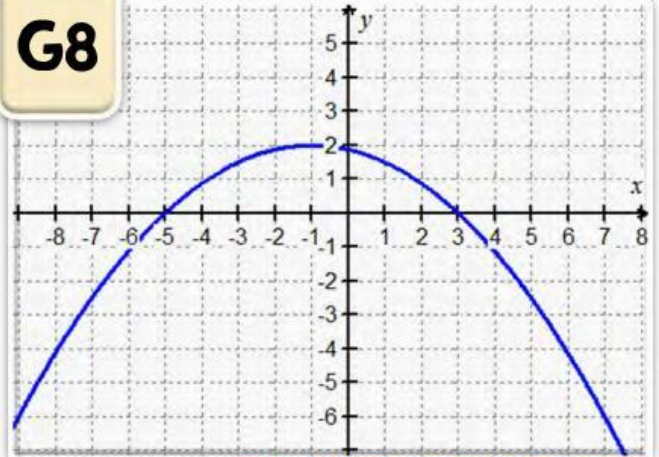
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G6

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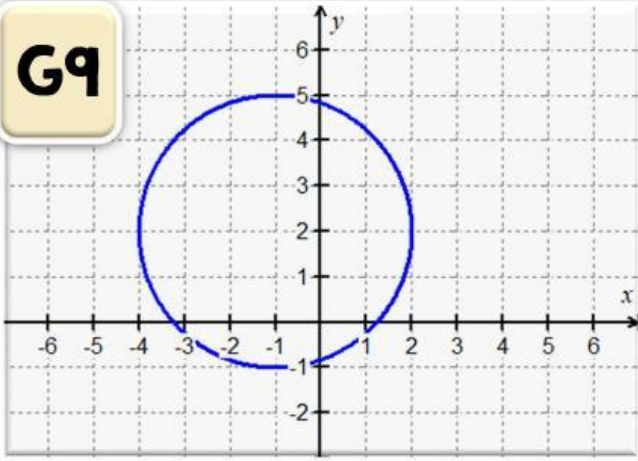
G7

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G8

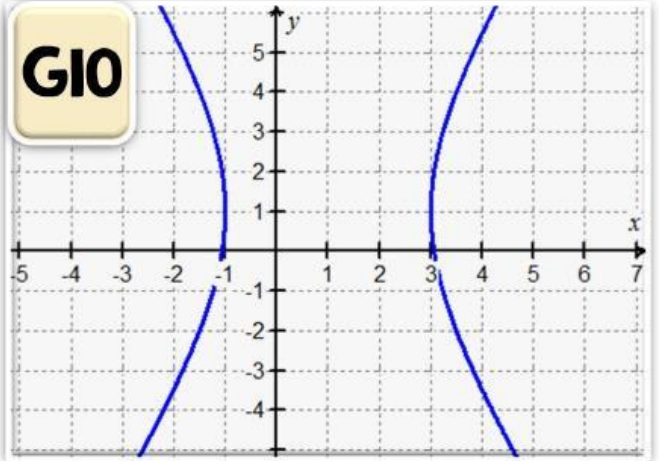
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G9



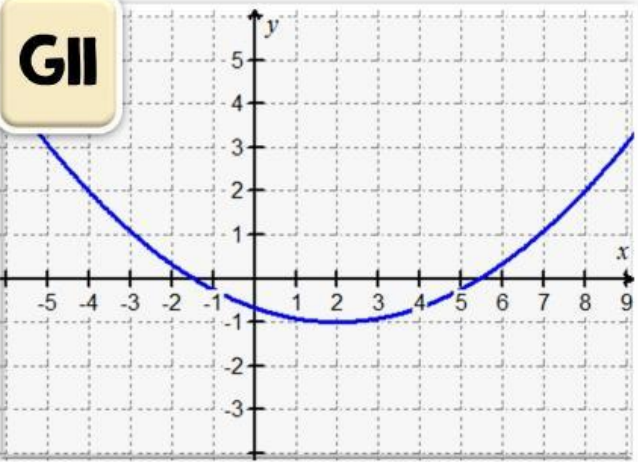
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G10



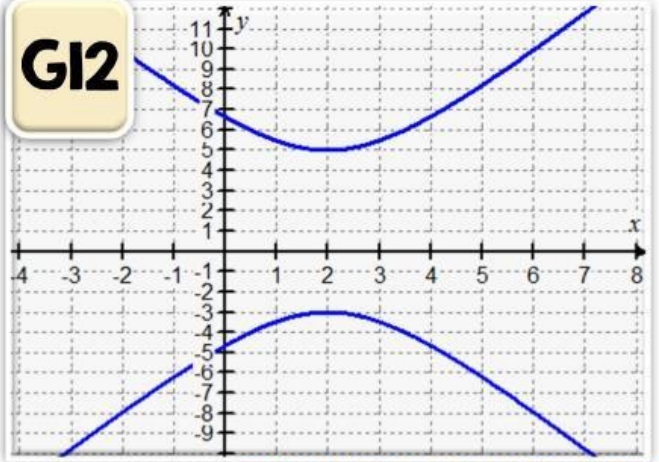
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G11



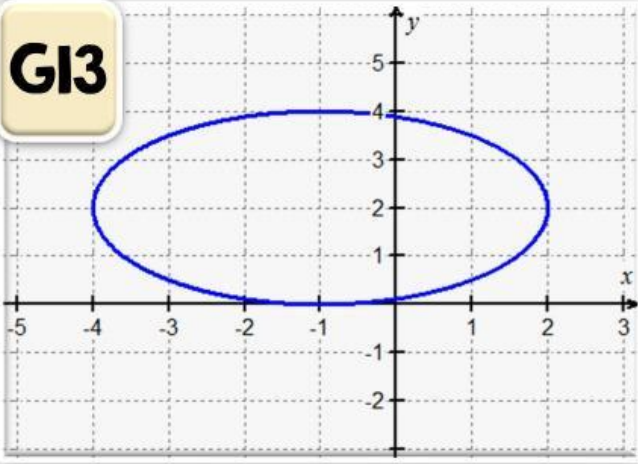
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G12



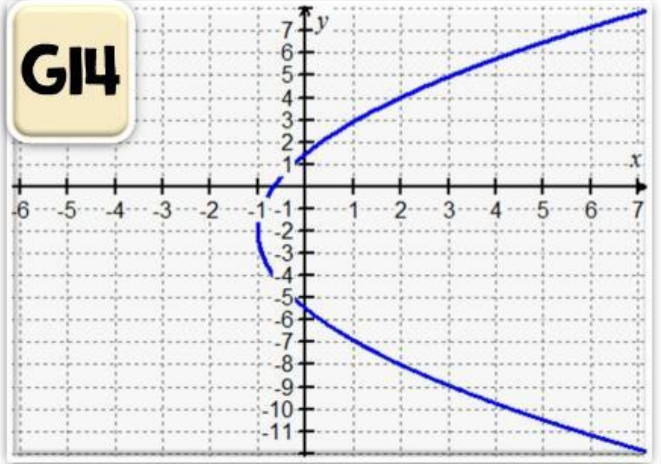
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G13



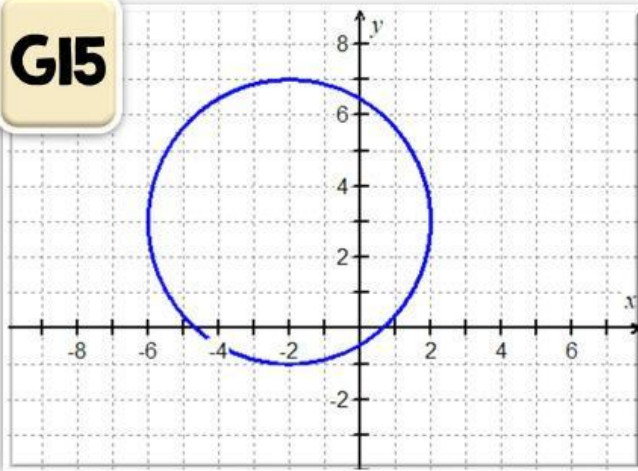
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G14



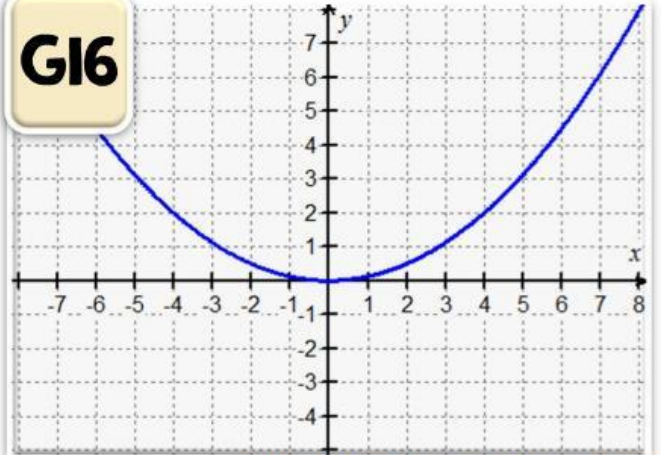
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G15



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G16



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A

$$(y + 1)^2 = -8(x - 2)$$

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B

$$\frac{(x + 1)^2}{9} + \frac{(y - 2)^2}{4} = 1$$

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C

$$25x^2 - 9y^2 = 225$$

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D

$$x^2 - 4x - 12y - 8 = 0$$

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E

$$x^2 = 8y$$

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F

$$x^2 + 4y^2 = 16$$

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G

$$\frac{(x - 2)^2}{4} + \frac{(y - 1)^2}{16} = 1$$

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H

$$\frac{(y - 1)^2}{16} - \frac{(x - 2)^2}{4} = 1$$

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I

$$4y^2 - 9x^2 = 36$$

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J

$$y^2 - 12x + 4y = 8$$

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K

$$4x^2 + y^2 = 16$$

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L

$$\frac{(x - 1)^2}{4} - \frac{(y - 1)^2}{16} = 1$$

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M

$$(x + 1)^2 = -8(y - 2)$$

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N

$$x^2 + y^2 = 16$$

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O

$$(x + 2)^2 + (y - 3)^2 = 16$$

© 2015 Flamingo Math.com

P

$$(x + 1)^2 + (y - 2)^2 = 9$$

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