

Algebra 2 Honors
Jan 20 to Jan 30

Date	Topic	Assignment
Tuesday 1/20	Intro to Conics - Circles	Worksheet
Wednesday 1/21	Ellipses (Day 1)	Worksheet
Thursday 1/22	Ellipses (Day 2)	Worksheet
Friday 1/23	Parabolas	Worksheet
Monday 1/26	Hyperbola (Day 1)	Worksheet
Tuesday 1/27	Hyperbola (Day 2)	Worksheet
Wednesday 1/28	System of Conics	Worksheet
Thursday 1/29	All Conics - Review	Worksheet
Friday 1/30	Test 3.2 - Conics	

Circles - Tuesday 1/20

Write an equation for the circle with the given center and radius.

1) center: $(-1, -5)$; $r = 2$ units

2) center: $(0, 7)$; $r = 1$ unit

Find the coordinates of the center and the radius of each circle whose equation is given and then draw a graph.

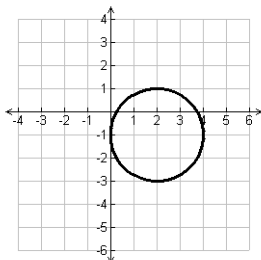
3) $(x-3)^2 + (y-1)^2 = 25$ 4) $(x+3)^2 + y^2 = 16$ 5) $x^2 + y^2 + 6y = -50 - 14x$

6) $x^2 + y^2 - 6y - 16 = 0$ 7) $x^2 + y^2 + -18x - 18y + 53 = 0$ 8) $4x^2 + 4y^2 + 36y + 5 = 0$

9) $x^2 - 12x + 84 = -y^2 + 16y$

Write the equation each graph or description of the circle. (hint: Distance Formula or Midpoint Formula)

10)



11) The circle has its center at $(8, -9)$ and passes through the point $(21, 22)$.

12) The circle passes through the origin and has its center at $(-\sqrt{13}, 42)$.

14) The endpoints of a diameter are at $(4, 5)$ and $(-2, -3)$.

Ellipses - Wednesday 1/21

Find the coordinates of the center and foci and the lengths of the major and minor axes for each ellipse, then sketch a graph.

1) $\frac{x^2}{9} + \frac{y^2}{18} = 1$

2) $\frac{(x-1)^2}{20} + \frac{(y+2)^2}{4} = 1$

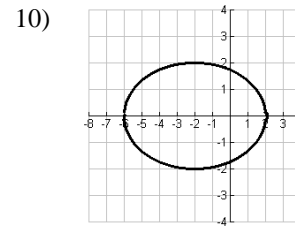
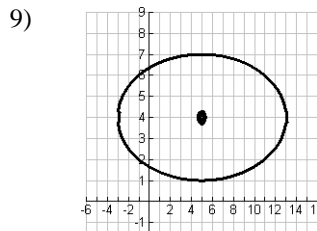
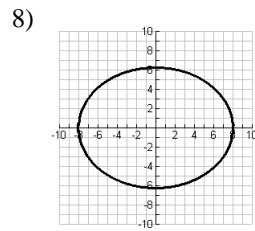
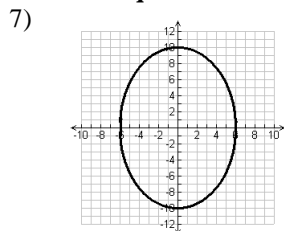
3) $\frac{x^2}{5} + \frac{y^2}{10} = 1$

4) $\frac{x^2}{25} + \frac{y^2}{9} = 1$

5) $\frac{(x-5)^2}{121} + \frac{(y+11)^2}{144} = 1$

6) $\frac{(x+8)^2}{144} + \frac{(y-2)^2}{81} = 1$

Write an equation for each graph.



Ellipses - Thursday 1/22

Answer the following.

1) The equation of a circle with diameter endpoints (2,5) and (0,3)

2) The equation of an ellipse with vertices (-1,3) (5,3) where the length of the minor axis is 4

3) Write in standard form a) $4x^2 + 16y^2 - 8x + 96y + 84 = 0$ b) $4x^2 + 5y^2 + 12x - 10y + 2 = 0$ c) $2x^2 + 6x + y^2 = \frac{1}{2}$

Find the coordinates of the center and foci and the lengths of the major and minor axes for each ellipse.

4) $16x^2 + 9y^2 = 144$

5) $3x^2 + y^2 + 18x - 2y + 4 = 0$

6) $7x^2 + 3y^2 - 28x - 12y = -19$

7) $9x^2 + 16y^2 - 18x + 64y = 71$

Write an equation for the ellipse described below.

8) The foci are at (12, 0) and (-12, 0). The endpoints of the minor axis are at (0,5) and (0, -5)

Parabolas - Friday 1/23

Graph and Find (a) vertex (b) focus (c) axis of symmetry (e) eq. of directrix

1) $y + 3 = \frac{-1}{4}(x - 3)^2$

2) $x - 2 = \frac{1}{8}(y + 1)^2$

3) $y + 2 = \frac{1}{8}(x - 4)^2$

4) $x - 5 = \frac{1}{4}(y - 1)^2$

5) $x - 3 = -\frac{1}{12}(y + 2)^2$

6) $y - 3 = -\frac{1}{8}(x + 1)^2$

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

8) $x = \frac{1}{4}y^2 - 3$

I. Write in standard form. Then find the vertex, focus, endpoints of latus rectum, eq. of directrix, eq. of axis of symmetry, and graph the equation (on graph paper)

9) $2y^2 + 8x - 8y + 16 = 0$

10) $y^2 + 6y + 12x + 57 = 0$

11) $16y = 4x^2 - 8x$

12) $2y^2 + 12y - 16x = 14$

III. Write in standard form. Do not graph.

13) $y^2 + 3y - 4x - 2 = 0$

14) $2y^2 + 2y - 16x + 1 = 0$

Hyperbolas - Monday 1/26

Find the coordinates of the center, vertices and foci and sketch a graph.

1) $\frac{x^2}{81} - \frac{y^2}{49} = 1$

2) $\frac{y^2}{36} - \frac{x^2}{4} = 1$

3) $\frac{x^2}{9} - \frac{y^2}{25} = 1$

4) $\frac{y^2}{16} - \frac{x^2}{25} = 1$

5) $\frac{(y-4)^2}{16} - \frac{(x+2)^2}{9} = 1$

6) $\frac{(y-3)^2}{25} - \frac{(x-2)^2}{16} = 1$

7) $\frac{(x+1)^2}{4} - \frac{(y+3)^2}{9} = 1$

8) $\frac{(x+6)^2}{36} - \frac{(y+3)^2}{9} = 1$

Hyperbolas - Tuesday 1/27**Write in standard form and find (a) center, (b) vertices, (c) foci**

1) $9x^2 - 25y^2 - 36x + 50y - 214 = 0$

2) $y^2 - 4x^2 + 8y + 16x - 4 = 0$

3) $9x^2 - 16y^2 - 54x - 63 = 0$

4) $21x^2 - 32y = 4y^2 - 84x + 64$

5) $9x^2 - 9y^2 - 90x - 18y + 297 = 0$

6) $16x^2 - 4y^2 + 64x + 24y - 36 = 0$

System of Conics - Wednesday 1/28**Solve the following systems algebraically and sketch the graphs.**

1) $x^2 + y^2 = 25$

2) $(x-4)^2 + (y+2)^2 = 10$

3) $\frac{x^2}{100} + \frac{y^2}{25} = 1$

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

$y = 10 - 2x$

$x + 2y = -5$

$y = -x - 5$

$y = x + 1$

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

6) $x + 2y^2 = 4$

7) $y^2 = x + 5$

8) $y = x^2 - 1$

$x^2 + y^2 = 4$

$y = 1 - x$

$x^2 + y^2 = 25$

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

All Conics - Thursday 1/29**I. For each of the following: (a) Identify the type of conic section, and (b) Write the equation in standard form.**

1) $x^2 + y^2 - 4x + 3 = 0$

2) $x^2 + y^2 - 2x + 4y + 4 = 0$

3) $4x^2 + y^2 + 24x - 4y + 36 = 0$

4) $x^2 + 9y^2 - 36y + 27 = 0$

5) $y^2 - 4x - 6y + 9 = 0$

6) $x^2 - 8x + 2y + 16 = 0$

7) $x^2 - 4y^2 + 8y - 8 = 0$

8) $x^2 - 9y^2 + 6x = 0$

9) $9x^2 + 4y^2 - 36x + 8y + 4 = 0$

10) $16x^2 - 9y^2 - 32x - 54y - 209 = 0$

11) $4y^2 + 4x^2 + 12y - 16 = 0$

12) $2x^2 + 98 = 4x + 24y$

13) $9x^2 - 4y^2 + 90x - 16y + 173 = 0$