Struggle & Progress, _____ Date_____ Period ___

Mathematics III for College Graduates **Unit 2:** Conics

Unit Essential Question: What are conic sections and how do I apply the graphs and equations?

Standards:

MM3G1. Students will investigate the relationships between lines and circles.

MM3G2. Students will recognize, analyze, and graph the equations of the conics sections (parabolas, circles, ellipses, and hyperbolas).

MM3G3. Students will investigate planes and spheres.

Day	Topic	Objectives	Essential Question	Assignments
Day 1 **Date(s):**	*Conic Intro & Circles* (MM3G1.a, MM3G1.b, MM3G2.a)	**2.01 – SWBAT** Use the discriminant to classify the conic section in general form. **2.02 - SWBAT** Define a circle. **2.03 - SWBAT** Graph a circle *at the origin* from its' equation in standard form. **2.04 - SWBAT** Graph a *translated* circle from its' equation in standard form. **2.05 - SWBAT** Convert a circle from general form to standard form by completing the square.	What is a conic? What is a circle? How do you **complete the square?** How do you **graph circles** at the orgin? How do you graph translated circles?	
Day 2 **Date(s):**	*Equations of Circles & Tangent Lines* (MM3G1.a, MM3G1.c)	**2.06 - SWBAT** Write the standard form of the equation of a circle at the origin. **2.07 - SWBAT** Write the standard form of the equation of a *translated* circle. **2.08 - SWBAT** Find an equation of a line tangent a given circle when given a point.	How do you **write the equation of a cirlce**? How do you find the **tangent line** to a given **circle** when given a point?	
Day 3 **Date(s):**	*Intersection of a Line and Circle or 2 Circles* (MM3G1.d, MM3G1.e)	**2.09 - SWBAT** Solve a linear-quadratic system with a line and a circle using substitution. **2.10 - SWBAT** Solve a quadric system with two circles using elimination. **2.11 – SWBAT** Write a circular model. **2.12 – SWBAT** Solve problems involving a circular model.	How do you find the **solution of a system** with a line and a circle or 2 circles?	
Day 4 **Date(s):**	*Parabolas* (MM3G2.a, MM3G2.b)	**2.13 - SWABT** Define a parabola. **2.14 - SWBAT** Graph a translated parabola from its' equation in standard form. **2.14 - SWBAT** Graph a parabola at the origin from its' equation in standard form. **2.16 - SWBAT** Convert a parabola from general form to standard form by completing the square.	How do you **graph** and write equations of a **parabola**?	
Day 5 **Date(s):**	*Parabolas Part 2* (MM3G2.a, MM3G2.c)	**2.17 - SWBAT** Write the standard form of the equation of a parabola with a given focus and vertex. **2.18 - SWBAT** Write the standard form of the equation of a parabola with a given directrix and vertex.	How do you write an **equation of a parabola** given different key points?	
Day 6	*Review of Circles and*	**All the above.**	How do you **differentiate**	

Date(s):	*Parabolas?*		**beetween a circle and a parabola** just by looking at the equations?	
Day 7 **Date(s):**	***Mini Assessment #2***	**Students will be assessed on objectives 2.01 – 2.18.**	What do you know about **circles** and **parabolas**?	
Day 8 **Date(s):**	*Ellipses* (MM3G2.a, MM3G2.b)	**2.20 - SWBAT** Graph a translated ellipse from its' equation in standard form. **2.21 - SWBAT** Graph an ellipse at the origin from its' equation in standard form. **2.22 - SWBAT** Convert an ellipse from general form to standard form by completing the square.	What is an **ellipse** and how do you **graph** it, given the equation?	
Day 9 **Date(s):**	*Ellipses Part 2* (MM3G2.a, MM3G2.c)	**2.23 - SWBAT** Write the standard form of the equation of an ellipse with a given vertex and co-vertex. **2.24 - SWBAT** Write the standard form of the equation of an ellipse with a given vertex and focus..	How do **you write an equation of an ellipse** given the vertices, co-vertices, and the foci?	
Day 10 **Date(s):**	*Hyperbolas* (MM3G2.a, MM3G2.b)	**2.25 - SWBAT** Define a hyperbola. **2.26 - SWBAT** Graph a translated hyperbola from its' equation in standard form. **2.27 - SWBAT** Graph a hyperbola at the origin from its' equation in standard form. **2.28 - SWBAT** Convert a hyperbola from general form to standard form by completing the square.	What is a **hyperbola** and how do you **graph** it, given the equation?	
Day 11 **Date(s):**	*Hyperbolas Part 2* (MM3G2.a, MM3G2.c)	**2.29 - SWBAT** Write the standard form of the equation of a hyperbola with a given foci and vertices. **2.30 - SWBAT** Write the standard form of the equation of an ellipse with given vertices and asymptotes.	How can you **write an equation of to a translated hyperbola**?	
Day 12 **Date(s):**	*Review of Ellipses and Hyperbolas*	**Day 8 – 11.**	How do you **differentiate beetween an ellipse and hyperbolas** just by looking at the equations?	
Day 13 **Date(s):**	***Mini Assessment #3***	**Students will be assessed on objectives 2.20 – 2.30**	What do you know about **ellipses** and **hyperbolas**?	
Day 14 **Date(s):**	*Graphing in 3D* (MM3G2.a, MM3G2.b, MM3G2.c)	**2.31 - SWBAT** Determine the coordinate points on 3-Dimensional Figures. **2.32 - SWBAT** Apply the distance formula in 3-Dimensional Space. **2.33 - SWBAT** Graph the equation of a plane **2.34 - SWBAT** Write the equation of a sphere in standard form with a given center and radius.	How do you **graph 3-dimensional**? How can you find the **distance** between two 3-dimensional points? How do you write an **equation of a sphere**?	
Day 15 **Date(s):**	*Unit Review*	**All the above.**	What do I need to know and be able to do to **DO MY BEST** on the Unit 2 Summative	