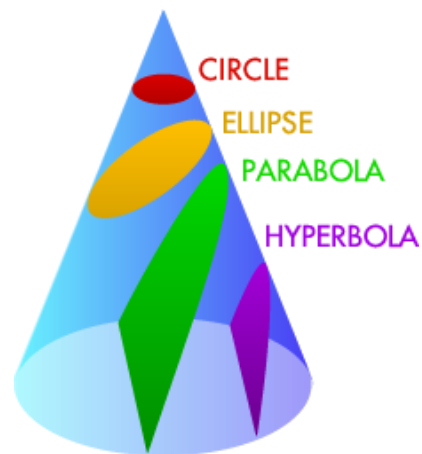


Precalculus Unit 3: Vectors and Relations & Geometric Reasoning

Our Learning Goals:

We will...

- ✓ graph sets of parametric equations and polar relations using the calculators.
- ✓ graph conic sections without the use of calculators and describe their characteristics.
- ✓ troubleshoot problems and limitations of the calculators.
- ✓ perform substitutions to convert coordinates and equations to other forms.
- ✓ investigate the part the third variable plays in parametric equations.
- ✓ make connections between the different formats of the relations.
- ✓ use and apply vectors to real-world problems.



Sample Problem:

Given the set of parametric equations: $x = 3t + 6$ and $y = t^2 - 2$, write the equations in rectangular form by eliminating the variable. What type of conic section is being represented? Describe the characteristics of this particular conic section.

Why do we study this?

- ❖ Vectors help us realize that all motion is ruled by distance and direction. Adding in a time component leads us directly to sets of parametric equations. Polar equations represent a specific type of parametric equations where an angle represents the third variable. All this manipulation teaches us that most things in mathematics can be viewed in a variety of ways. The last part of the unit deals with conic sections and their applications to orbits, arches, and even flashlights!

Additional Support:

- Check the teacher web pages for posted daily notes, worksheets, assignments, etc.
- Search the topic on the web. We recommend Khan Academy and Illuminations.
- Attend tutorials – you can see ANY math teacher for help.

How we will show what we have learned...

Formative Assessments	Summative Assessments
Ongoing formative assessments during lesson and homework activities will help in monitoring learning and providing feedback for students.	Summative assessments to measure learning at the end of concepts will include the following: <ul style="list-style-type: none">• Test: Vectors & Applications• Test: Parametric & Polar Equations• Unit 3 Exam (district wide)