Topics

In this unit, we continue our study of the conic sections with investigations on translation and rotation of axes. The course concludes with a study of parametric equations.

- Translation of axes (10.2-4)
  - standard equation of a translated conic
  - finding axes, foci, etc., of translated conics
  - finding equations of translated conics
- Rotation of axes (10.5, plus supplementary pamphlet)
  - general equation of a conic section
  - finding the angle of rotation
  - converting the equation of a rotated conic to the standard equation of a translated conic
  - finding axes, foci, etc., of rotated conics
  - identifying conics
- Parametric equations (10.7)
  - definition of parametric equations
  - graphing a plane curve given by parametric equations
  - eliminating the parameter
  - projectile motion
  - finding parametric equations of conic sections

Unit 9 will be followed by the Analytic Geometry Final Exam.

Study Guidelines for the 8th edition of Sullivan's *Precalculus*

These reading and problem assignments are designed to help you learn the course material. You should complete all of these problems, check your answers in the back of the textbook, and get help with the problems that you missed. Most of the problems are odd-numbered, so you can check the solutions in the Solutions Manual.

The only way to learn mathematics is to do mathematics, so while these problems will not be collected or graded, you will probably not do well in the course if you do not complete these and check your work as described above. After completing these problems, go on to the Unit Exam Description below and follow directions.

- **Section 10.2-4:** Translation of axes
  - **Reading**:
    - section 10.2: objective 2 (Vertex at (h,k)) - read and work through examples 6-7 and their matched problems
    - section 10.3: objective 2 (Center at (h,k)) - read and work through examples 5-6 and their matched problems

        - section 10.4: objective 3 (Center at (h,k)) - read and work through examples 7-8 and their matched problems
    - The parabolas applet illustrates the various types of parabolas which have vertex at (h,k).
    - The ellipses applet illustrates the various types of ellipses which have center at (h,k).
    - The hyperbolas applet illustrates the various types of hyperbolas which have center at (h,k).
    - **Practice Problems**:
        - 10.2 #12, 13, 15, 18, 29, 33, 35, 41-53 odds, 55, 57, 59, 61, 76-79
        - 10.3 #39-63 odds, 83-85
        - 10.4 #39-59 odds, 71, 73, 75-76

- **Section 10.5:** Rotation of Axes
    - **Reading**: section 10.5
      Read and work through examples 1-5 and their matched problems.
    - Supplementary pamphlet on Rotation of Axes: While this pamphlet has nothing really new in the text, it does have 4 additional examples and 10 additional exercises with detailed answers.
    - **Practice Problems**: 10.5 #1-4, 11-51 odds, 53-56

- **Section 10.7:** Parametric equations
    - **Reading**: section 10.7
      Read and work through examples 1-7 and their matched problems.
    - Parametric equations for ellipses and hyperbolas
    - **Practice Problems**: 10.7 #1, 7-25 odds, 27, 35, 37, 39, 41, 45, 47, 49-61 odds

- **Supplementary material**:
    - Student Solutions Manual
    - For tutoring help, visit the Prentice Hall Tutor Center. Tutors can be contacted by phone, fax, or e-mail. To register, you will need the access code that came with your textbook.
    - Graphing Calculator Help
