Pre-Calculus Syllabus

How can this book help your students achieve success?

- Clear, easy-to-read examples that include all the steps needed to understand a new concept.
- Key course material presented on CD-ROM using animated PowerPoint slides making it easy to review content or material missed due to an absence.
- Concepts are presented through examples, applications, technology, or explorations to adapt the course to the curriculum needs or student learning styles.
- Applications in the examples use real life data for students to see the relevance of what they are learning.
- Many examples include numerical, algebraic, and/or graphical presentations to provide students an opportunity to see the solution represented in a way that is most clear to them.
- Chapter assessments, which can be customized, with solutions help students assess their mastery of the material.
- Clearly defined lesson objectives, teaching strategies and content background including technology tips and frequently asked questions guide the teacher through the units.

This book is divided into 11 units to cover essential pre-calculus topics necessary to build a successful bridge to calculus. These units include:

1. Number Patterns
2. Equations and Inequalities
3. Functions and Graphs
4. Polynomial and Rational Functions
5. Exponential and Logarithmic Functions

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6. Trigonometry
7. Trigonometric Graphs
8. Solving Trigonometric Equations
9. Trigonometric Identities and Proof
10. Trigonometric Applications
11. Limits and Continuity

How to use the Pacing Guide and Daily Lesson Plans

These materials are divided into the following tabs: 0) Introduction and Standards Alignment, 1) Syllabus, Pacing Guides, and Daily Lesson Plans, 2) Student Workbook, 3) Teacher Workbook, 4) Class Notes (overhead or PowerPoint versions of Student Worksheets) 5) Quizzes and Tests – Student Version, and 6) Quizzes and Tests – Teacher Key. This material gives both student and teacher a structured approach to learning Pre-Calculus concepts.

The following gives the teacher a good method of how to use these materials. Tab 0 has information about the author's beliefs and education philosophy as well as the alignment of the course materials with national and specific state standards. Tab 1 includes the class syllabus, pacing guide for day-to-day lesson objectives and activities, and daily lesson plans to assist the teacher in planning and implementing the lesson plan. **The pacing guide and daily lesson plans reference specific objectives (e.g., 1.1a, 1.1b, etc.), which correspond to the same numbering system in the Student Workbook and Teacher Workbook. Make sure the students get a copy of each of the student workbook pages for each unit before you start teaching it!** The workbook sheets have a corresponding version in the class notes, that should be shown on overhead projector or in its PowerPoint version for the student to follow the teacher's instructions and add (by writing on their copy) pertinent course material and understanding in the provided "white spaces". Tab 3 includes the same Student Workbook as in Tab 2, but also has the answers including specific notes and fully annotated examples. Tab 5 has quizzes and tests in both Microsoft Word and ExamView formats for all units. Finally, Tab 6 includes the key the quizzes and tests in Tab 5.

A typical use for these materials may follow this scenario. The teacher is ready to start a new unit so they would make sure that the students had a copy of that unit's Student Workbook for each student on day one of the unit. The teacher would do one of the following as preparation to teach the unit: 1) Make overhead copies of the Student Workbook to write on with a transparency marker as the lessons unfold, 2) Make overhead copies of the Student Workbook – Teacher Key to be used with a "cover sheet" and revealing the notes "just in time" for the students to learn the concepts, 3) Use a monitor projector to display animated PowerPoint slides from the Student Workbook – Teacher Key files provided, or 4) Any combination of options 1 and 2 with writing the notes on a chalkboard or white board. The teacher should reference Tab 1 daily lesson plans prior to delivering the lesson to be familiar with the types of questioning prompts, analogies, or teaching strategies that may promote more student learning during the lesson. A note of caution should be given to the teacher that using a balanced delivery strategy (i.e., combination of options 1, 2, 3, and 4 mentioned above) will engage most learning styles and avoid monotony of delivery style.

Grading Rubric: You may wish to print this grading rubric and share it with your students:

Rubric Score	Math Reasoning	Problem Solving	Communication	Math Connections	Use of Tools
4 Superior	Uses sophisticated math reasoning• Provides strong supporting arguments Includes examples and counter-examples	Shows thorough understanding of the problem's math ideas and processes Uses and synthesizes multiple strategies that lead to correct solution	Contains a complete response with clear, precise and appropriate language Uses effective diagrams such as graphs, tables, or charts	Demonstrates comprehensive knowledge of connections to other math topics or other disciplines	Makes appropriate use of technology and manipulatives to demonstrate math concepts
3 Competent	Uses sound math reasoning Includes some supporting arguments	Shows basic understanding of the problem's math ideas and processes Uses appropriate strategies that lead to correct solutions	Contains a solid response but is expressed less elegantly and less completely Uses accurate diagrams	Demonstrates some knowledge of connections to other math topics or other disciplines	Uses some technology and manipulatives to demonstrate solutions to problems
2 Marginal	Uses somewhat appropriate math reasoning Includes incomplete or faulty arguments	Shows a partial understanding of the problem Uses some appropriate strategies that lead to partially correct solutions	Contains a fairly complete response but uses unclear language Uses inappropriate and/or unclear diagrams	Demonstrates few connections to other math topics or other disciplines	Occasionally uses technology and manipulatives appropriately
1 Limited	Uses limited math reasoning Includes no arguments	Shows little understanding of the problems Uses poor or inappropriate strategies that lead to incorrect solutions	Uses some appropriate math language Uses few, if any, diagrams	Does not demonstrate or demonstrates inappropriate connections to other math topics or disciplines	Rarely uses technology and manipulatives appropriately