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Sequencing Rationale

The Relations, Functions, and Graphs unit is sequenced in a manner that the lessons build upon each other and reinforce skills learned previously in Algebra 2. New skills are introduced to deepen the understanding of the topics covered. In mathematics linear succession of skills is very important. Each new item adds a new level of understanding to the previous item. The students must first learn the longer way to solve a problem before they can be taught a faster to solve them. By learning the shortcuts afterwards, the students have a complete picture of the entire topic.

Going through this unit before the trigonometry unit is critical for success in that unit. Reinforcing the skills of evaluating equations, interpreting graphs, and modeling data must be done before beginning trigonometry. In that unit students will be required to evaluate and manipulate functions, interpret graphs, and model data.

The first subunit, Linear Relations and Functions, is important to start with because it refreshes the students over basic concepts covered during Algebra. Because the lessons are review for the students, this subunit serves as a good place to introduce the graphing calculators to the students. They begin to learn to do simple computations and create graphs with the calculators. As the class progresses through the subunit the students are required to perform more functions with the calculators. The students discovering the correct keystrokes and sequences help with their proficiency with technology.

The second subunit, Systems of Linear Equations and Inequalities, introduces more options with matrices. The subunit takes linear equations and inequalities one step further than the previous subunit. The students have done some work with matrices, but on a limited scale. The students will evaluate matrices and apply them to real world situations. They will also discover more tools available to them on their graphing calculators. This section shows the students the applications for the math to possible career choices.

The third subunit, The Nature of Graphs, could have followed the first subunit. It is in this sequence because this subunit involves some work with systems of equations, a topic covered in subunit two. This subunit deals with examining where different graphs develop from and how they can be altered. Many new aspects of the graphs are examined. Examining the graphs and their critical points will be made much easier through the exploration with the technological inquiry of the calculators. The content discovered here will play an important role in the trigonometry unit when the students are graphing and analyzing sine and cosine functions. The various functions evaluated in this part of the unit will lead directly into the final section of the unit.

The final subunit, Polynomial and Rational Functions, elaborates the evaluation of functions from the previous subunit. This subunit has some ties that can be applied to other units, but its content is more applicable to this unit. There are some evaluation skills that can be applied to the next unit. The students will evaluate trigonometric functions in the next unit, and skills maintained here will be useful. However, the students will need to recall this section when they are working in the third unit of the course.