

Student Teacher: Christina Bifulco

Class: Pre-Calculus

Date: Monday, March 10, 2008

*Topic:*

Graphing Sine and Cosine Using With Varying Period and Amplitude

*New Jersey Core Curriculum Standards:*

4.3.12.B. Functions and Relationships, Grade 12

- Analyze and explain the general properties and behavior of functions of one variable, using appropriate graphing techniques

4.5.E. Representations, Grade 2-12

- Create and use representations to organize, record, and communicate mathematical ideas.

*Objectives:*

1. Students will be able to define amplitude and period of sine and cosine curves.
2. Students will be able to determine types of vertical and horizontal stretching based on the equation for a function.
3. Students will be able to graph sine and cosine functions taking into account vertical and horizontal.

*Materials:*

- Blackboard and chalk
- List of student groups
- Additional problems and completed examples for graphing focus group
- Additional problems and completed examples for cycle focus group
- Game board, cards, and game pieces for review focus group
- Cards noting group numbers

*Motivation:*

Students will come into the class and find their group number from the list posted on the board, and find their appropriate group. Group numbers for each group of desks will be posted.

*Procedure:*

1. We will go over the homework from the previous class (review sheet for quiz on Tuesday).

2. Students will be split into focus groups based upon their exit cards from Friday, noting what they felt were their weaknesses. The focus groups are split into groups of those students who feel that they have a solid knowledge base of material and just need to review, the students that need help finding key points of functions and graphing sine and cosine, and those students who need help finding intervals and cycles.
  - a. The first group will be given a board game to help them review for the quiz that will have questions on finding key points of the graphs, cycles, period and amplitude etc.
    - i. What are the definitions of period and amplitude?
    - ii. Is the graph and image or typical curve of sine/cosine?
    - iii. Are sine and cosine even or odd? What does this do to the equation?
  - b. The remaining two groups will be given packets of information that will have additional detailed examples for students to look through, and problems for them to complete.
    - i. What is the equation to find the number of cycles in terms of the function's period and interval?
    - ii. Can you set up an equation to solve for the missing piece of information?

*Assessments:*

Students will have a quiz on graphing sine and cosine with varying amplitudes and periods on Tuesday. Teacher will be observing students in their groups, and answering and asking questions as necessary.

*Homework:*

Study for quiz on Tuesday on graphing sine and cosine functions.