Today's Plan:

Learning Target (standard): I will describe real-world functions.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

Applied Calculus: R. Seals (seals_r@betheltate.org or 734-2271 ext. 7037)

Course Description: Applied Calculus is a college-level course designed for high achieving math students who plan to further their educational career. Students will also have the option of taking it for college credit through the University of Cincinnati with an appropriate placement score.

Applied Calculus I includes:
1. Functions and their graphs
2. Limits and continuity of functions
3. The derivative
4. Applications of the derivative

Applied Calculus II includes:
1. Anti-differentiation
2. The fundamental theorem and integration
3. Functions of two variables
4. Partial derivatives
5. Lagrange multipliers and applications to probability and area

Text: *Elements of Calculus with Analytic Geometry*

Supplies/Materials Required: Notebook, pencil, dry erase markers, graph paper and paper

Required Class Projects: Students will be using the school-provided TI-Nspire graphing calculators to assist the development of concepts.

Classroom Procedures: Homework is assigned at least 4 times a week. This means that your student will usually have material that will need to be completed out of class. Homework is checked every time that it is assigned. Homework assignments are worth 5 points each. Homework is assessed on a "good faith effort" basis. That means I will check it for completion, notation, necessary steps and accuracy, even though the final answer may not be correct. As long as the homework is attempted and completed with "good faith effort," the student will receive 5 points. Homework is to be set out on the desk when the student enters the classroom. It will be checked while the students complete warm-up problems at the board. If the homework is not laid out at the beginning of class and the student must be reminded, one point will be deducted from the grade after the second reminder. If it is forgotten more than twice, the student will receive a zero for the assignment. Homework is viewed as practice and because of this is not accepted late. Fieldtrips and sporting events are not an absence from school so homework should be turned in the day it is due. In addition, class notes and examples will be posted on my website **www.math4tigers.org** on a daily basis. These notes should not replace those that the student is expected to take in class, but should supplement them. If the student misses class because of an excused absence, work assigned prior to the absence is due on the day the student returns to school. The student can use my website to get any missed notes and have make-up work ready the day after the return to school as stated in the student handbook. We will also be using Google Classroom for assignments and announcements. Parents are encouraged to join the Google Classroom as well. Every homework assignment will be returned to the student so that s/he may use it to prepare for each test or quiz. All tests and quizzes will be returned to the students so that they may be able to see their progress, but the test or quiz will be kept in my room. Students are welcome and encouraged to come in during homeroom or after school to go over them in more detail, but they must remain in my room unless prior arrangements have been made. Students needing extra help may attend the scheduled help sessions during homeroom or after school or may see me after school upon request.

Evaluation Procedures: The board adopted grading scale will be used to calculate grades. Grades are based on the total points earned divided by the total points possible. Homework assignments are worth 5 points, quizzes are worth 15-25 points, tests are worth 40-60 points. All coursework is 80% of the final grade with the final exam worth 20% of the final grade. All work is to be completed in pencil – NO exceptions. Absence must be EXCUSED to receive credit for work not turned in on the due date. Or it can be emailed to me on its due date and time-stamped prior to the end of your assigned class period.

Google Classroom:

67tqxln

Use Cramer's Rule to solve.

$$3x - 2y = -8$$
$$-x - 4y = 12$$

$$D = \begin{vmatrix} 3 & -2 \\ -1 & -4 \end{vmatrix} = -12 - 2$$

$$D = -14$$

$$D_x = \begin{vmatrix} -8 & -2 \\ 12 & -4 \end{vmatrix} = 32 + 24$$

$$D_x = 56$$

$$D_y = \begin{vmatrix} 3 & -8 \\ -1 & 12 \end{vmatrix} = 36 - 8$$

$$D_y = 28$$

$$x = \frac{D_x}{D} = \frac{56}{-14}$$

$$y = \frac{D_y}{D} = \frac{28}{-14}$$

independent

$(-4, -2)$

Simplify.

$$\frac{3i}{-2-5i} \cdot \frac{-2+5i}{-2+5i} = \frac{-6i+15i^2}{4-25i^2}$$

$$\boxed{i^2=-1}$$

$$= \frac{-6i-15}{4+25}$$

$$= \frac{-6i-15}{29}$$

$$= \frac{-15}{29} + \frac{6}{29}i$$

Solve by completing the square.

$$k^2 - 10k + 15 = 6$$

$$\frac{10}{2} = 5^2 = 25$$

$$k^2 - \boxed{10}k + 25 = -9 + 25$$

$$\sqrt{(k-5)^2} = \pm\sqrt{16}$$

$$k-5 = 4, -4$$

$$k = 9, 1$$

Factor completely.

$$4p^3 - 20p^2 - 2p + 10$$

$4p^2(p-5) - 2(p-5)$

$(p-5)(4p^2-2)$

$2(p-5)(2p^2-1)$

$2(p-5)(\sqrt{2}p+1)(\sqrt{2}p-1)$

Find the domain of the given function:

$$f(x) = \frac{2x-3}{x+2}$$

$x+2=0$

$x=-2$

D: $\{x \mid x \neq -2\}$

Assignment:

Intermediate Algebra #1-8

* You will have an example and a non-example for each problem - make sure to support these *

Pre-calculus #1-3,5-8

* You can use sentences, equations, diagrams, etc. *