Possible Unit 4 Activities

4-1-1 Algebra of functions

As in 1150, given graphs (or tables?) of two functions, find points of combos of those functions.

For complicated forms, find the order of steps when plugging in x. Begin to get “birds eye view” of the structure of a function.

Truck mpg problem from 1151

Create functions from stories (e.g., revenue, profit, area). S-Z p.83- Several examples. S-Z Volume of cut-out box: p. 239. APC 5.3.4 (p. 280)

4-1-2 Creating a new famous function: Tangent

4-1-3: What is a piecewise function?

Absolute value. Define ABS(f(x)): Involves finding zero of f(x): Just do linear? Several Abs. Value equations, inequalities in MFG (2.4- including precision).

Graph piecewise function. Active Reading Approach> Checkpoint 2.2.5

4-2: Polynomials

4-2-1 Parabolas

MFG: Several (too difficult) problems. Does do good job with famous parabol;a forms, including ax^2-bx.

4-2-2 Definition of polynomials

Relationship to place value. Perhaps give Taylor series for an f(x) and approximate?

4-2-3 Shape of Polynomials

Lead term of factored polynomial. S-Z p. 246.

Several general questions: S-Z p. 249 #38.

Take linear polynomial and keep multiplying by factors (What happens to what we had with zeroes, end behavior, etc.)?

Using zeroes and signs to help determine behavior: APC: Activity 5.2.2 p. 265 and 5.2.4 (Given info on zeroes, turning points, end beh, graph and give a possible formula). Simpler: Calc-Medic2.3

End behavior: Calc-Medic: formula, graphs. What term would change the end behavior of a given polynomial?

Calc-Medic: 2.5: Which of the following formulas satisfies clues? What can we tell about zeroes from table?

4-3 Rational Functions

4-3-1 Famous Function 1/x

4-3-2 Definition of Rational Functions

% of Koolaid after starting with 3 cups mix to 5 cups water: Pour more mix: (x+3)/(x+8) or 3/(x+8): End behavior

Calc-Medic: 2.6: Concentration of drug in bloodstream.

MFG: Many more contexts in 7.4: Fill table, graph, HA, VA.

ORCCA: III-150: Several Contexts and questions.

On all, need to discuss degrees of top and bottom and why the dominant one controls the end behavior (not doing division argument yet, but by evaluating at large values. Slant asymptotes by noting linear behavior). Also identify holes.

4-3-3: Polynomials in disguise

Is (x^2 – 4)/(x+2) = x+2? Domain issues.