

Critical Thinking

<b>Critical Thinking and Mathematical Skills</b>					
(revised 2008)	Levels: I - introduced; P - practiced; M - mastered	Current Text			
*As this course is supplementary and stand alone, it may be tailored to meet the needs and interests of the students.					
*The following topics should be considered a list of possible areas of study. It is not necessary to teach all topics listed.					
<b>CONCEPT</b>	<b>SKILLS</b>	<b>LEVEL</b>	<b>Chapter</b>	<b>Teaching Notes</b>	<b>STATE GOALS</b>
<b>I. Sets</b>			2	*this should be new to all	
	1. set concepts & subsets	P, M			
	2. Venn diagrams and set operations	I, P, M			
	3. Venn diagrams with three sets	I, P, M			
	4. set applications	I, P, M			
	5. infinite sets - notation and applications	I, P, M			
<b>II. Logic</b>			3	*this should be new to all	
	1. Vocabulary - negation, conjunction, disjunction, conditional, biconditional	P, M			
	2. Truth tables	I, P, M			
	3. evaluating statements for equivalency	I, P, M			
	4. symbolic arguments	I, P, M			
	5. Euler diagrams	I, P, M			
<b>III. Number Theory</b>			5	*some of this will be new	
	1. identify characteristics of major sets in the real number system (rational, irrational, counting, whole, integers)	P, M			
	2. review properties of real numbers	P, M			
	3. review exponents and scientific notation	P, M			
	4. arithmetic and geometric sequences	P, M			
<b>IV. Linear Functions</b>			6	*a good review before their college placement tests	
	1. order of operations	P, M			
	2. solving linear equations/inequalities	P, M			
	3. using formulas	P, M			
	4. using direct/inverse variation	P, M			
	5. graphing linear equations/inequalities	P, M			
<b>V. Linear Systems</b>			7	*a good review before their college placement tests	
	1. solve linear systems by	P, M			
	a. Graphing				
	b. Substitution				
	c. Elimination				
	d. Matrices				

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	2. graph systems of linear inequaltites	P, M		
	3. linear programming	P, M		
<b>VI. Geometry</b>	1. review terms	P, M	9	*a good review before
	2. polygon properties	P, M		their college placement tests
	3. perimeter, area, volume	P, M		
	4. tranformational geometry	P, M		
	5. special geometry features (Mobius strip)	I, P, M		
<b>VII. Other Mathematical Systems</b>				*this should be new to all
	1. Into to other bases, especially binary	I, P, M	4	
	2. computation in other bases	I, P, M	4	
	3. modular arithmetic	I, P, M	10	
<b>VIII. Metric System</b>			8	*might do a pre-test to see
	1. basic terms and conversions	P, M		if students need this
	2. dimensional analysis: metric & english	P, M		
	3. length, area, volume, mass, temp.	P, M		
<b>IX. Consumer Math applications</b>			11	*high interest in this topic
	1. loans with simple interest	P, M		*very applicable
	2. compound interest	P, M		
	3. installment buying/credit cards	P, M		
	4. buying a house with a mortgage	I, P, M		
<b>X. Graph Theory</b>			14	*not in current student edition
	1. paths and circuits - differentiate	I, P, M		only in teachers edition
	2. Euler paths and circuits	I, P, M		
	3. Hamilton paths and circuits	I, P, M		
	4. trees	I, P, M		
Current Text:				
A Survey of Mathematics with Applications 7th edition				
Pearson Addison Wesley				
pub. 2005				