COURSE: MATH 12 COLLEGE PRE-CALCULUS CURRICULUM

NYS Learning / Core Standards	Content (What needs to be taught?)	Curriculum Material Used	(All(Assessments Used) (Daily/Weekly/Benchmarks)	Time Line
A-SSE 1ab,2,3a A-APR 1	Notations: Sets Union Intersection Intervals Open vs. closed Infinity Polynomial Functions Factoring techniques (grouping, difference of squares/cubes, sum of cubes) Inequalities: Polynomials Rationals (show table & number line methods)	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	September
A-CED 2 F-LQE 2 G-GPE 5 F-IF 7abc,8a F-BF 3	Absolute value (one side & both sides) Use cases Linear Functions: General form Slope-intercept Point Slope Intercept Slopes of parallel vs perpendicular Functions: Determine x/y intercepts Symmetry (even/odd) Semi- circle Ellipses (upper/lower half) Power functions Transformations (horizontal/vertical shifts, stretching, absolute value)	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	October

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F-IF 1,2 F-BF 1bc 4abcd A-APR 2,3,6,8	Define functions in parts Inverses Domain Compositions Operations Direct & inverse variation Polynomial functions & Operations: Long division Synthetic division Is x-c a factor Is c a root	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	November
N-CN 8,10 A-REI 10,11 F-IF 1,2,4,7,	Descartes rule of signs Rational root theorem Intermediate value theorem Upper / lower bounds Use above methods to determine roots Sum/product of roots Graphing polynomial functions to determine roots and factors Rational functions: Graphing of x/y intercepts Horizontal / vertical asymptotes	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	December

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F-IF 8b F-BF 5 F-LQE 4 A-REI 6,7,8	Graphing exponential & logarithmic functions: Domain / range Use transformation concepts from chap. 2 Review solving linear-linear and linear quadratic systems of equations Introduction of 3 variable systems solve by eliminations Solve by matrices	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	January
F-BF 2 F-IF 3	Sequences and Series: General vs. recursive form Arithmetic vs. geometric Sum of: n terms of an arithmetic seq. Partial sum of an increasing geometric sequence Sum of an infinite geometric sequences Sigma notation Arithmetic & geometric means TEST HERE Limits: Characteristics of sequences (inc, dec, monotone, lub, glb, bounded) "Neighborhood" concept, epsilon Prove limits by using (L-E, L+E) as the neighborhood Prove limits, find M for a given epsilon value	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	February

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Periodic (weekly) quizzes Unit tests Homework	Limits of sequences: Relate to horizontal asymptote rules Behavior of numerator vs. denominator Review log/exponent properties What happens as n approaches ∞ TEST Limits of functions: Behavior as x → ±∞ Consider functions's domain Functions defined in part Can the function be rewritten or simplified QUIZ Limit as x→ a (one-sided limits) Look at limits graphically Asymptote vs. hole in graph Indeterminate form One sided limits when no true limit exists rewriting functions when f(a) = 0/0	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	March

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NYS Learning / Core Standards	Content (What needs to be taught?)	Curriculum Material Used	(All(Assessments Used) (Daily/Weekly/Benchmarks)	Time Line
N/A	Derivatives: What does it represent? Find by definition, evaluate at x=a Equation of tangent line QUIZ Derive power rule by binomial theorem Extended power rule Product rule Derive quotient rule from product rule Find when f'(x) = 0 Simplify derivatives TEST	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	April
F-IF 4,7 abcde	Curve sketching: Find where f'(x)=0 Horizontal tangent lines Critical points Determine intervals where f(x) is increasing or decreasing Use increasing / decreasing intervals to determine maximum and minimums Second derivative Concavity, inflection points Use all of above to sketch functions QUIZ Use graphing calculator to assist with maximum / minimums , zeros, derivatives QUIZ	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	May

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NYS Learning / Core Standards	Content (What needs to be taught?)	Curriculum Material Used	(All(Assessments Used) (Daily/Weekly/Benchmarks)	Time Line
	FINAL EXAM REVIEW	Text TI 84 Calculators Teacher generated handouts TI Enspire software Smartboard	Periodic (weekly) quizzes Unit tests Homework	June