MAC1147 – Precalculus Algebra and Trigonometry

Summer B 2020 CALENDAR

Instructor: Recep Celebi

		WEEK 1	
July 6	Monday	L1-3	**Real numbers** and their properties, absolute value, interval notation, basic rules of algebra // properties of **exponents** and **radicals**, simplifying and combining radicals, rationalizing denominators // **Polynomials**: basic terminology, operations with polynomials, special products, removing common factor, factoring special polynomial forms, and other factoring methods
July 7	Tuesday	L4	Simplifying and operations with **rational expressions**, complex fractions, and difference quotient.
July 8	Wednesday	L5	**Solving equations**: solving linear equations in one variable, quadratic equations (quadratic formula and completing the square), polynomial equations of higher degree, equations involving radicals and absolute values, identifying extraneous roots
July 9	Thursday	L6-8	**Solving linear equalities // rectangular coordinates**, plotting points in the Cartesian plane, using distance and midpoint formulas, **graphs of equations** (lines and circle), x- and y-intercepts // **linear equations in two variables**, slope, vertical and horizontal lines, identifying parallel and perpendicular lines, slope as ratio or rate of change
July 10	Friday	L9	**Introduction to functions**, function vs relation, basic terminology, domain and range of a function, function notation and evaluating functions, piecewise functions, difference quotients, **analyzing graphs of functions**, vertical line test, zeros of a function, increasing/decreasing/constant functions, even and odd functions, average rate of change, **recognizing parent functions**
		WEEK 2	
July 13	Monday	L10	**Transformations** of functions
July 14	Tuesday	L11	Arithmetic **combination** of functions, **composition** of two (and more) functions, domain analysis
July 15	Wednesday	L12	**Inverse functions**, finding the inverse of a function algebraically and geometrically, one-to-one functions, horizontal line test
July 16	Thursday	L13	**Quadratic functions**, the standard form, vertex of a parabola, real-life applications
July 17	Friday	L14	**Polynomial functions** of **higher degree**, using the Leading Coefficient Test to determine the end behavior, finding zeros, sketching graphs of polynomial functions, long and synthetic division, the Remainder Theorem, the Factor Theorem
July 17	**Friday**	**X**	**EXAM #1 (L1-12)**
		WEEK 3	
July 20	Monday	L15	**Complex numbers**, complex conjugates, complex solutions of quadratic equations
July 21	Tuesday	L16	**Zeros of polynomial functions**, the Fundamental Theorem of Algebra, the Linear Factorization Theorem, the Rational Zero Test
July 22	Wednesday	L17	**Rational functions**, vertical and horizontal asymptotes, sketching graphs of rational functions
July 23	Thursday	L18	**Nonlinear inequalities** (polynomial and rational inequalities)
July 24	Friday	L19	Linear and nonlinear **systems of equations**

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		WEEK 4	
July 27	**Monday**	**X**	**EXAM #2 (L13-19)**
July 27	Monday	L20	**Exponential functions**, recognizing, evaluating, and graphing exponential functions
July 28	Tuesday	L21	**Logarithmic functions,** recognizing, evaluating, and graphing logarithmic functions
July 29	Wednesday	L22	**Properties of logarithms,** product, quotient, power properties, change of basis, rewriting, evaluating, expanding, and condensing logarithmic expressions
July 30	Thursday	L23	**Solving exponential and logarithmic equations**
July 31	Friday	L24	**Exponential and logarithmic models,** exponential growth/decay, Gaussian models, logistic growth models, logarithmic models
		WEEK 5	
August 3	Monday	L25-26	**Radian** and **degree** measure // **Trigonometric functions** & **the unit circle**
August 4	Tuesday	L27	**Right triangle** trigonometry & **trigonometric functions** of **any angle**
August 5	Wednesday	L28-29	**Graphs** of **sine** and **cosine** functions // **Graphs** of **other** trigonometric functions
August 6	Thursday	L30-31	**Inverse** trigonometric functions // Trigonometric **applications** and **models**
August 7	Friday	L32-33	Using **fundamental identities** // **verifying** trigonometric identities
August 7	**Friday**	**X**	**EXAM #3 (L20-29)**
		WEEK 6	
August 10	Monday	L34	**Solving trigonometric equations**
August 11	Tuesday	L35	**Sum and difference formulas**
August 12	Wednesday	L36	**Multiple-angle and product-to-sum formulas**
August 13	Thursday	X	Review
August 14	**Friday**	**X**	**FINAL EXAM (L1-36 CUMULATIVE)**

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List of lectures

L1: Real numbers and their properties
L2: Exponents and radicals
L3: Polynomials and factoring
L4**:** Rational expressions and complex fractions
L5: Solving equations
L6: Solving linear inequalities
L7: Rectangular coordinates and graphs
L8: Linear equations
L9: Introduction to functions, analyzing graphs of functions, and a library of parent functions
L10: Transformations of functions
L11: Combination of functions & composite functions
L12: Inverse functions
L13: Quadratic functions
L14: Polynomial functions of higher degree
L15: Complex numbers
L16: Zeros of polynomial functions
L17: Rational functions
L18: Nonlinear inequalities
L19: Linear and nonlinear systems of equations
L20: Exponential functions
L21**:** Logarithmic functions
L22: Properties of logarithms
L23: Solving exponential and logarithmic equations
L24: Exponential and logarithmic models
L25: Radian and degree measure
L26: Trigonometric functions & the Unit Circle
L27: Right triangle trigonometry & trigonometric functions of any angle
L28: Graphs of sine and cosine functions
L29: Graphs of other trigonometric functions
L30: Inverse trigonometric functions
L31: Trigonometric applications and models
L32: Using fundamental identities
L33: Verifying trigonometric identities
L34: Solving trigonometric equations
L35: Sum and difference formulas
L36: Multiple-angle and product-to-sum formulas

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Lecture-Textbook Correspondence

Lecture	Abramson	Larson	Lecture	Abramson	Larson
1	X	A1	19	9.1, 9.3	7.1, 7.2
2	X	A2	20	4.1, 4.2	3.1
3	X	A3	21	4.3, 4.4	3.2
4	X	A4	22	4.5	3.3
5	X	A5	23	4.6	3.4
6	X	A6	24	4.7	3.5
7	X	1.1, 1.2	25	5.1	4.1
8	2.1, 2.2	1.3	26	5.2	4.2
9	1.1, 1.2, 1.3	1.4, 1.5, 1.6	27	5.3, 5.4	4.3, 4.4
10	1.5	1.7	28	6.1	4.5
11	1.4	1.8	29	6.2	4.6
12	1.7	1.9	30	6.3	4.7
13	3.2	2.1	31	5.4, 6.1, 6.2	4.8
14	3.3, 3.4, 3.5	2.2, 2.3	32	7.1	5.1
15	3.1	2.4	33	7.1	5.2
16	3.6	2.5, 2.6	34	7.5	5.3
17	3.7	2.6	35	7.2	5.4
18	9.3	2.7	36	7.3, 7.4	5.5