

**KNOX COUNTY PACING GUIDE
PRECALCULUS 3126**

**CHAPTER 2
FUNCTIONS AND THEIR GRAPHS**

NUMBER OF DAYS 11		Vocabulary relation; function; domain; range; independent and dependent variable; difference quotient; implicit and explicit form; function notation; secant line; increasing; decreasing and constant functions; local maximum and minimum; even and odd functions; shifts; reflections; compressions and stretches; composite functions			Writing Prompts Explain the meaning of domain and range. Compare and contrast rigid and nonrigid transformations. What is an inverse function? If given a function, how do you find the inverse? What is a Correlation Coefficient and why is it important to data analysis?	
DAY	SECTION	KEY	TOPIC	PAGES	ASSIGNMENT	
1			GENERAL INFORMATION HAND OUT TEXT BOOKS (Review Chapter 1 As Needed Throughout Course)			
2	2.1	C	FUNCTIONS	82-101	p. 95 Concepts p. 95-96 # 5-30(5ths),33-48 (3rds), 50-80 (5ths)	
3	2.2	C	LINEAR FUNCTIONS AND MODELS	101-111	p.108 Concepts p.108-111 # 5-30(5ths)	
4	2.3	A	PROPERTIES OF FUNCTIONS	112-125	p. 121 Concepts p. 122-124 # 1-10,18-69(3rds)	
5	2.3	A	PROPERTIES OF FUNCTIONS DAY 2		Emphasize interval notation. Refer to section 1.5 if necessary.	
6	2.4	A	LIBRARY OF FUNCTIONS; PIECEWISE- DEFINED FUNCTIONS	125-135	p. 132 Concepts p. 132-133 #1-8, 9-37 odd	
7	2.5	A	GRAPHING TECHNIQUES: TRANSFORMATIONS	135-147	p. 144 Concepts p. 145-147 #1-16, 18-72 (3rds)	
8	2.6	A	OPERATIONS OF FUNCTIONS; COMPOSITE FUNCTIONS	148-157	p. 155 Concepts p. 155-157 #3-66 (3rds)	
9			EXTRA DAY AS NEEDED			
10			REVIEW	166-171	p. 167-171 #1-6, 9-24 (3rds), 25, 30-91 (3rds), 79	
11			CHAPTER 2 TEST	172	p. 172 cumulative review	

CHAPTER 3 POLYNOMIAL AND RATIONAL FUNCTIONS

NUMBER OF DAYS 12		Vocabulary			Writing Prompts	
		Parabolas, axis of symmetry, vertex, power function, polynomial function, zero function, constant function, linear function, rational function, asymptotes, zero of even or odd multiplicity, Intermediate Value Theorem, Fundamental Theorem of Algebra, complex numbers, conjugate			How do you find vertical and horizontal asymptotes of a function? Discuss the various techniques for factoring polynomials. You do not have a calculator. You are given a polynomial function of degree five and must find the zeros, the shape, and the end behavior. Discuss your plan of action.	
12	3.1	A,I*	QUADRATIC FUNCTIONS AND MODELS	174-195	p. 189 Concepts p. 189-192 #1-8, 9-75 (3rd), 87	
13	3.2	A,I*	POWER FUNCTIONS AND MODELS	195-200	p. 199-200 Concepts p. 200 #1-17 odd	
14	3.3	C,A,I*	POLYNOMIAL FUNCTIONS AND MODELS	201-213	p. 210 Concepts p. 211-212 # 3-69 (3rds)	
15	3.4	A	RATIONAL FUNCTIONS 1	214-225	p. 224 Concepts p. 224-225 #1-17 odd, 24-48 (3rds)	
16	3.5	A	RATIONAL FUNCTIONS 2	226-236	p.233 Concepts p. 234-235 #3-45 (3rds)	
17	3.6	A,I*	POLYNOMIAL AND RATIONAL INEQUALITIES	236-244	p. 242 Concepts p. 243 #1-33 odd	
18	3.6	A,I*	POLYNOMIAL AND RATIONAL INEQUALITIES	236-244	p. 243-244 # 35-57 odd, 60, 63, 66	
19	3.7	C,A,I*	REAL ZEROS OF A POLYNOMIAL FUNCTION	244-258	p. 257 Concepts p. 257-258 #5-70 (5ths)	
20	A.7	C	COMPLEX NUMBERS	1037-1044	p. 1045 #3-78 (3rds)	
21	3.8	A	COMPLEX ZEROS; FUNDAMENTAL THEOREM OF ALGEBRA	259-264	p. 263 Concepts p. 263-264 #5-35 (5ths)	
22			REVIEW	264-269	p. 266-268 3 3-99 (3rds)	
23			CHAPTER 3 TEST		p. 271 Cumulative Review	

* See the curriculum guide for specific objectives when more than one letter is given as a key.

CHAPTER 4 EXPONENTIAL AND LOGARITHMIC FUNCTIONS

NUMBER OF DAYS 9		Vocabulary			Writing Prompts	
		Inverse; exponential; logarithmic; common log, natural log, and general log; simple, compound, and continuous compound interest; half-life; logistical growth; carrying capacity			How does the graph of the exponential function help you graph the logarithmic function? Discuss the domain, range, and asymptotes of each function. State the general guidelines that you follow when solving exponential equations. State the general guidelines that you follow when solving logarithmic equations.	
24	4.1	A	ONE-TO-ONE FUNCTIONS; INVERSE FUNCTIONS	274-287	p. 284 Concepts p. 284-286 # 3-60 (3rds)	
25	4.2	A,I*	EXPONENTIAL FUNCTIONS	287-301	p. 297 Concepts p. 297-299 #1, 11-18, 21-42 (3rds) 43-63 odd	
26	4.3	C,A,I*	LOGARITHMIC FUNCTIONS	301-313	p. 310-311 #3-24 (3rds),25-36, 37-51 odd	
27	4.4	A	PROPERTIES OF LOGARITHMS	313-322	p. 321 Concepts p. 321-322 #1-16, 18-75 (3rds)	
28	4.5	A	LOGARITHMIC AND EXPONENTIAL EQUATIONS	323-327	p. 327 #1-59 odd	
29	4.5	A	LOGARITHMIC AND EXPONENTIAL EQUATIONS	323-327	supplement-worksheet	
30	4.6	A	COMPOUND INTEREST	327-337	p. 335-336 #1-35 odd	
	4.7	A,I*	GROWTH AND DECAY	338-349	p. 360-362 # 1-11 odd	
31			REVIEW	358-364	p. 360-362 #3-75 (3rds)	
32			CHAPTER 4 TEST		p. 365-366 Cumulative Review	

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CHAPTER 5 TRIGONOMETRIC FUNCTIONS

NUMBER OF DAYS 13		Vocabulary			Writing Prompts
		standard position of an angle; initial and terminal sides; radian and degree measures; linear and angular speed; area of a sector; unit circle; six circular functions; periodic function; sinusoidal graphs; amplitude, period, phase, and vertical shifts			Explain angle of elevation and angle of depression. What is a radian? Compare radians and degrees. Create a table of the six trigonometric functions comparing their domains, ranges, periods, and zeros. Write a short paragraph describing the patterns in the trigonometric functions. Compare the six trigonometric functions of a 30 degree angle, a 150 degree angle, a 210 degree angle, and a 300 degree angle.
33	5.1	A,I*	ANGLES AND THEIR MEASURE	368-380	p. 378 Concepts p. 379 #1-179 odd
34	5.1	A,I*	ANGLES AND THEIR MEASURE DAY 2	368-381	
35	5.2	A	UNIT CIRCLE APPROACH	381-398	p. 395 Concepts p. 395 1-38
36	5.2	A	UNIT CIRCLE APPROACH	381-398	p. 395-396 # 39-103 odd
37	5.3	A	PROPERTIES OF TRIGONOMETRIC FUNCTIONS	399-413	p. 411 #1-32
38	5.3	A	PROPERTIES OF TRIGONOMETRIC FUNCTIONS	399-413	p. 410-411 Concepts p. 411-412 #33-91 odd
39			TEST OR QUIZ		SECTIONS 5.1 - 5.3
40	5.4	A	GRAPHS OF THE SINE AND COSINE FUNCTIONS	414-429	p. 426-427 # 1-12, 15-37 odd
41	5.4	A	GRAPHS OF THE SINE AND COSINE FUNCTIONS	414-429	p. 426 Concepts p. 427-428 #39-52, 53-69 odd
42	5.5	A,I	GRAPHS OF THE TANGENT, COTANGENT, COSECANT, AND SECANT FUNCTIONS	430-436	p. 435 Concepts p. 435-436 # 1-14, 15-33 (3rds)
43	5.6	A	PHASE SHIFT; SINUSOIDAL CURVE FITTING	437-448	p. 446 #1-15 odd
44			REVIEW	448-454	p. 451-453 #3-72 (3rd)
45			CHAPTER 5 TEST		p. 456 Cumulative Review

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CHAPTER 6 ANALYTIC TRIGONOMETRY

NUMBER OF DAYS 12		Vocabulary			Writing Prompts	
		inverse functions; identity; sum and difference of angles; solutions of trig equations			In a paragraph, discuss what it means to "verify" an identity. Describe the difference between verifying an identity and solving an equation.	
46	6.1	A	THE INVERSE SINE, COSINE, AND TANGENT FUNCTIONS	458-470	p. 468 #1-24	
47	6.1	A	THE INVERSE SINE, COSINE, AND TANGENT FUNCTIONS	458-470	p. 468 Concepts p. 468-469 # 25-44	
48	6.2	A	THE INVERSE TRIGONOMETRIC FUNCTIONS	470-475	p. 474 Concepts p. 474-475 #3-51 (3rds)	
49	6.3	A	TRIGONOMETRIC IDENTITIES	475-482	p. 480-481 # 3-36 (3rds)	
50	6.3	A	TRIGONOMETRIC IDENTITIES	475-482	p. 480 Concepts p. 481 # 40-75 (5ths)	
51	6.4	A,I*	SUM AND DIFFERENCE FORMULAS	482-493	p. 491 Concepts p. 491-492 #3-30(3rds), 35-79(5ths)	
52	6.5	A,I*	DOUBLE-ANGLE AND HALF-ANGLE FORMULAS	493-503	p. 501 Concepts p. 501-502 # 3-21 (3rds), 30-60 (5ths)	
53			REVIEW			
54			TEST OR QUIZ		p. 522-523 # 1-19 odd, 25-50 (5ths), 54-108 (3rds) Save questions on equations until after sections 6.7 and 6.8	
55	6.7	A	TRIGONOMETRIC EQUATIONS 1	507-512	p. 511 Concepts p. 511 # 1-41 odd	
56	6.8	A	TRIGONOMETRIC EQUATIONS 2	513-520	p. 518-519 #3-36 (3rds), 45-54 (3rds)	
57			CHAPTER 6 TEST			

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CHAPTER 7
APPLICATIONS OF TRIGONOMETRIC FUNCTIONS

NUMBER OF DAYS 8		Vocabulary Law of Sines, Law of Cosines, Heron's Area Formula			Writing Prompts Can the Law of Sines be used to solve a right triangle? Explain.
58	7.1	A	RIGHT TRIANGLE TRIGONOMETRY	528-539	p. 536 Concepts p. 536-537 # 3-48 (3rds)
59	7.2	A	THE LAW OF SINES	539-551	p. 547-548 # 1-27 odd
60	7.2	A	THE LAW OF SINES	539-551	p. 547 Concepts p. 548-549 # 29-43 odd
61	7.3	A	THE LAW OF COSINES	551-557	p. 554 Concepts p. 555 # 1-27 odd
62	7.4	A	AREA OF A TRIANGLE	557-563	p. 560 Concepts p. 561 # 1-27 odd
63	7.5	I	OPTIONAL		
64			REVIEW	573-579	p. 574-575 # 3-48 (3rds)
65			CHAPTER 7 TEST		p. 580 Cumulative Review

CHAPTER 8
POLAR COORDINATES

NUMBER OF DAYS 5		Vocabulary Polar Coordinate System, Pole, Polar Axis, $\theta = \pi / 2$, Polar Coordinates, Limacon, Rose Curve, Cardioid, Lemniscate			Writing Prompts What is the difference between the rectangular coordinate system and the polar coordinate system?
66	8.1	A	POLAR COORDINATES	582-590	p. 589 Concepts p. 590 # 1-71 odd
67	8.2	A,I*	POLAR EQUATIONS AND GRAPHS	591-609	p. 607 # 1-15 odd, 17-30
68	8.3	A	THE COMPLEX PLANE; DEMOIVRE'S THEOREM	609-618	p. 616 Concepts p. 617-618 #3-48 (3rds)
69			REVIEW	654-656	p. 655-656 #3-54 (3rds)
70			CHAPTER 8 TEST		

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CHAPTER 11 SEQUENCES AND SERIES

NUMBER OF DAYS 7		Vocabulary		Writing Prompts	
		Infinite Sequence, Finite Sequence, Factorials, Summation Notation, Sigma Notation, Index of Summation, Series, Arithmetic Sequence, Common Difference, Nth Term of an Arithmetic Sequence, Sum of a Finite Arithmetic Sequence, Geometric Sequence, Common Ratio, Nth Term of a Geometric Sequence, Infinite Geometric Series, Geometric Series		Write a brief paragraph explaining how to use the first two terms of a geometric sequence to find the nth term.	
71	11.1	A	SEQUENCES	852-867	1 - 33 odd p. 864
72	11.1	A	SEQUENCES	852-867	35 - 65 odd p. 864
73	11.2	A	ARITHMETIC SEQUENCES	867-873	1 - 31 odd p. 870
74	11.2	A	ARITHMETIC SEQUENCES	867-873	33 - 45 odd, 49 p. 870
75	11.3	A	GEOMETRIC SEQUENCES AND SERIES	873-883	1 - 59 every other odd, 63, 65 p. 880
	11.5	I	THE BINOMIAL THEOREM		OPTIONAL
76			REVIEW		
77			CHAPTER 11 TEST		