	#	Outcomes	Context	Possible conditions	Subcomponents	Textbook	Outcome scores
A. Functions	1	Determine if y is a function of x	Given 2 variables in a table; Given 2 variables in a graph.	Missing values; not one-to-one	Definition of a function; Explain vertical line test; Understand functional notation	1.1: 5-10	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐ = Score #1 ☐ ☐ ☐ ☐ ☐ = Score #2
	2	Identify the independent and dependent variables	Given a statement of a function			1.1: 1-4	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	3	Identify the domain of a function	Given a graph; Given a table; Given a scenario	Missing values; asymptotes		1.2: 1-18	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	4	Sketch the graph of a function	Given domain, range, and description ("increasing over…")		Increasing; decreasing; concavity	1.1: 48 1.3: 21-36	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	5	Evaluate functions	Given scenario; Given formula; Given graph with labeled points Given table	Discern the difference between f(a) = b and f(b) = a.		1.1: 15-34, 47	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
B. Linear Functions	6	Determine if x and y have a linear relationship	Given a table		Calculate slope	2.1: 47-48	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	7	Graph linear functions	Given a formula; Given a graph of y = mx + b.	Given y = mx +b, sketch: y = –mx + b y = mx – b y = mx +2b y = bx + m	Domain; Range	2.2: 1-22	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	8	Find the linear function	Given a graph; Given a table; Given 2 points; Given y-intercept and slope; Given point and slope	Info may be given in a scenario. Given nonlinear f(x) and secant line connecting f(2) and f(5), find formula for secant line	Calculate slope; Calculate y-intercept; Use point-slope form; Simplify to y=mx + b	2.1: 1-6, 17-46	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	9	Interpret the slope and y-intercept of a linear function	Given a scenario; Given output from regression	Interpret coefficients of multiple regression analysis.		2.3	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	10	Solve a linear equation or simple linear system	Given a graph; Given an equation; Given 2 linear functions	No solution; infinite solutions. Solve analytically Solve graphically Optimize a simple system		2.2: 45-50 2.3: 1-12, 19-20	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
C. Transformations	11	Find piecewise function	Given graph, find formula. Given formula, find graph. Given scenario, find graph/formula	All linear pieces (unless this topic is covered later)	Identify domain/range	1.2: 25-36	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	12	Determine effect of transformation on a function	Given graph and transformation, sketch transformed function	Transformations: af(x), –af(x), f(ax), f(–ax), –f(x), f(–x), f(x)+a, f(x+a), |f(x)|, f(|x|)		1.5: 1-14, 17-20, 33-34, 41-56, 75-86	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
M. Modeling	13	Explain the least-squares criterion				2.4	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	14	Evaluate fit of linear model with R^2	Given output from regression			2.4: 13-14	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	15	Make predictions from linear models	Given output from regression	Nonsensical extrapolations		2.4: 7-8	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
							1 2 3 4 5

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D. Composition/Inverse	16	Evaluate composition of functions	Given f(x) and g(x), find f(g(x)); Given formulas, table, or graph	3+ functions; f(f(x)). Given formula for f(g(x)), find possible formulas for f(x) and g(x). Given table of x, f(x), g(x), f(g(x)), g(f(x)) with missing values.	Simplify. Identify domain and range.	1.4: 1-28, 35-40	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐ = Score #1 ☐ ☐ ☐ ☐ ☐ = Score #2
	17	Find inverse function	Given formula for f(x)	Find composition to check answer	Determine if inverse exists or restriction is needed. Graphs of inverse functions reflected over y = x	1.6: 7-10, 13-24	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
E. Exponential	18	Interpret parameters of $y = a(1+r)^x$	Given a formula, graph, scenario. Given a graph of $y = a(1+r)^x$, graph functions with different parameters	Given $y = a(1+r)^x$, sketch: $y = 2a(1+r)^x$ $y = a(1-r)^x$ $y = a(1+2r)^x$		4.2: 1-10	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	19	Find exponential function	Given scenario with: • initial value and growth rate • two points • half-life information - half-life, remaining % - half-life, remaining X safe level	Piecewise function	Properties of exponents	4.1: 7-28	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
F. Logarithmic	20	Solve exponential equations	Given equation or two exponential functions, solve analytically and graphically.		Properties of logs	4.3: 41-44, 47-52, 65-70	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	21	Evaluate or simplify logarithms.	Translate between $b^a = c$ and $\log_b(a) = c$. Estimate simple logarithms by hand.	Non-base-10		4.3: 1-6, 9-14, 17-22, 25-34	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	22	Solve problems using natural logs				4.3: 7-8, 15-16, 23-24, 35-36	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
M.	23	Fit and evaluate exponential/logarithmic/logistic models.	Given data and technology or output from regression analyses.	Evaluate fit of linear vs exponential model		4.1: 1-6 4.6: 1-14 4.7: 13-16	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
							1 2 3 4 5

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G. Polynomial	24	Find zeros of a polynomial	Given equation, estimate solutions graphically.	Derive polynomial from a scenario	Factoring, polynomial division	3.3: 1-8	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐ = Score #1 ☐ ☐ ☐ ☐ ☐ = Score #2
	25	Describe characteristics of polynomial functions	Given graph, describe or find: • Domain, range • End behavior • Concavity, inflection points • Zeros • Relative extrema			3.1: 1-30 3.3: 9-12	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	26	Find polynomial function	Given zeros and degree; Given zeros, degree, leading coef. Given zeros, degree, point	4th-degree polynomial with 3 zeros		3.3: 31-50	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
H. Quadratic	27	Interpret parameters of $f(x) = a(x-h)^2 + k$	Given a graph of $f(x) = a(x-h)^2 + k$, graph functions with different parameters	Given $f(x) = a(x-h)^2 + k$, sketch: $y = a(x + h)^2 + k$ $y = a(x + h)^2 - k$ $y = -a(x - h)^2 + 2k$		3.2: 1-6	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	28	Find quadratic function	Given vertex and point; Given x- and y-intercepts			3.2: 19-26	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	29	Find zeros of quadratic function	Given function, find zeros: • Graphically • by factoring • quadratic formula		Derive quadratic formula by completing the square	3.2: 7-12, 27-30	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	30	Find vertex of quadratic function	Given formula or scenario	Solve maximization/minimization problems	Derive by setting standard form = vertex form.	3.2: 7-18, 27-30, 33-38	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
I. Rational	31	Find vertical and horizontal asymptotes		3 cases: • numerator degree < denom. • numerator degree = denom. • numerator degree > denom.	Relate to domain/range. Need to find zeros of denominator. Holes vs asymptotes.	3.4: 5-24	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
M.	32	Evaluate polynomial model fit to data	Given data and technology (or output from computer), evaluate polynomial model				☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
							1 2 3 4 5

		Outcome	Context	Possible conditions	Subcomponents	Textbook	Outcome scores
J. Periodic	33	Interpret parameters of sinusoidal functions	Given a graph of f(x) = Asin[B(x-c)]+d, graph functions with different parameters. Given base function, find formula for transformation. Given formula of a sinusoidal function, find amplitude, midline, domain, range, and period.	Given f(x) = Asin[B(x-c)]+d, sketch: y = 2Asin[B(x-c)]+d y = Asin[2B(x-c)]+d y = Asin[B(x+c)]+d y = Asin[2B(x-c)]-d. Given the graph of a transformed sinusoidal function, find the formula for that transformation.	Definitions of trig functions	6.1: 1-24	1 2 3 4 5 ☐ ☐ ☐ ☐ ☐ = Score #1 ☐ ☐ ☐ ☐ ☐ = Score #2
K. Trigonometric	34	Translate between degrees and radians	Given an angle in degrees or radians			5.2: 3-6	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	35	Use inverse trig functions to find exact solutions to trigonometric equations	Given equation		Explain why arcsin(pi) yields an error message on your calculator.	6.4: 13-24	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	36	Evaluate trig functions	e.g., Given angle X lies in quadrant 3 and cos(X) = -2/7, find: • sin(X) • sec(X), etc.		Definitions of trig functions; reciprocals. Derivation of simple angles. Domain/range of functions.	5.3: 1-8 5.4: 9-12 6.2:	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	37	Derive basic identities				5.4	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
	38	Translate between coordinates and distance/angle to identify a point	Given coordinates (1, 3): • Find distance from origin • Find angle Given point on unit circle defined by angle X, find coordinates.			5.1: 1-2 5.3: 19-20	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
M.	39	Evaluate the fit of a trig function to data	Given data and technology (or output from a computer)			6.5: 7-18	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
							1 2 3 4 5

Outcome Scoring:
0 = 00% = No evidence (missed test)
1 = 20% = I know you don't know it
2 = 40% = I think you don't know it
3 = 60% = I think you know it
4 = 80% = I know you know it, but you made a mistake
5 = 100% = I know you know it

Each outcome will be assessed multiple times

Your final score for each outcome will be the average of your top 2 scores

Your grade will be based on an average of all your final outcome scores

Points possible = 5 x 39 SLOs x 2 = 390 points

Grading scale:
A ≥ 90% = 351-390 points
B ≥ 80% = 312-350 points
C ≥ 70% = 273-311 points
D ≥ 60% = 234-272 points
F < 60% = 0-233 points