

#	Outcomes	Context	Possible conditions	Subcomponents	Textbook	Outcome scores							
<b>A. Functions</b>	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> = Score #1 <input type="checkbox"/> = Score #2	
	2	Identify the independent and dependent variables	Given a statement of a function			1.1: 1-4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	3	Identify the domain of a function	Given a graph; Given a table; Given a scenario	Missing values; asymptotes			1.2: 1-18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	4	Sketch the graph of a function	Given domain, range, and description ("increasing over...")		Increasing; decreasing; concavity		1.1: 48 1.3: 21-36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>B. Linear Functions</b>	6	Determine if x and y have a linear relationship	Given a table		Calculate slope	2.1: 47-48	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>C. Transformations</b>	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>M. Modeling</b>	13	Explain the least-squares criterion				2.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	14	Evaluate fit of linear model with $R^2$	Given output from regression			2.4: 13-14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	15	Make predictions from linear models	Given output from regression	Nonsensical extrapolations			2.4: 7-8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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<b>D. Composition/Inverse</b>	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	<table border="0"> <tr> <td>1</td><td>2</td><td>3</td><td>3.4</td><td>4</td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table> = Score #1 = Score #2	1	2	3	3.4	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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	<table border="0"> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
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<b>E. Exponential</b>	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	<table border="0"> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
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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	<table border="0"> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
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<b>F. Logarithmic</b>	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	<table border="0"> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
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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	<table border="0"> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
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22 Solve problems using natural logs				4.3: 7-8, 15-16, 23-24, 35-36	<table border="0"> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
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<b>M.</b>	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	<table border="0"> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
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J. Periodic	33 Interpret parameters of sinusoidal functions	Given a graph of $f(x) = A\sin[B(x-c)]+d$ , graph functions with different parameters.	Given $f(x) = A\sin[B(x-c)]+d$ , sketch: $y = 2A\sin[B(x-c)]+d$ $y = A\sin[2B(x-c)]+d$ $y = A\sin[B(x+c)]+d$ $y = A\sin[2B(x-c)]-d$ .	Definitions of trig functions	6.1: 1-24	1 2 3 3.4 4 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> = Score #1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> = Score #2
		Given base function, find formula for transformation.	Given the graph of a transformed sinusoidal function, find the formula for that transformation.			
		Given formula of a sinusoidal function, find amplitude, midline, domain, range, and period.				
	34 Translate between degrees and radians	Given an angle in degrees or radians			5.2: 3-6	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	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	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
K. Trigonometric	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:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
		37 Derive basic identities			5.4	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	38 Translate between coordinates and distance/angle to identify a point	Given coordinates (1, 3): • Find distance from origin • Find angle			5.1: 1-2 5.3: 19-20	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
		Given point on unit circle defined by angle X, find coordinates.				
M.	39 Evaluate the fit of a trig function to data	Given data and technology (or output from a computer)			6.5: 7-18	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

1 2 3 3.4 4

Outcome Scoring:  
0 = 00% = No evidence (missed test)  
1 = 25% = I know you don't know it  
2 = 50% = I think you don't know it  
3 = 75% = I think you know it  
3.4 = 85% = I know you know it, but you made a mistake  
4 = 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 = 4 x 39 outcomes = 156 points

Grading scale:  
A ≥ 90% = 141-156 points  
B ≥ 80% = 125-140 points  
C ≥ 70% = 110-124 points  
D ≥ 60% = 94-109 points  
F < 60% = 0-93 points