NEW MEXICO
Public Education Department

F.22 - High School Algebra II Trigonometry

PUBLISHER/PROVIDER MATERIAL INFORMATION (TO BE COMPLETED BY PUBLISHER/PROVIDER)			
Publisher/Provider Name/Imprint:		Grade(s):	
Title of Student Edition:		Student Edition ISBN:	
Title of Teacher Edition:		Teacher Edition ISBN:	
Title of SE Workbook:		SE Workbook ISBN:	

PUBLISHER/PROVIDER CITATION VIDEO: Reviewer must view video before starting the review of this set of materials.			
Citation Video Link:			
Citation video certification:	I certify that I have viewed the citation video for this specific publisher and set of materials.		
Digital Material Log In: (Include ONLY if submitting digital materials as part of the review set listed above.)	Website:	Username:	Password:

Section 1: Standards Review -- Math Content Standards

PUBLISHER/PROVIDER INSTRUCTIONS:

• Publisher/Provider citations for this section will refer to the **Teacher Edition (teacher-facing core material)**. The cited Teacher Edition should correspond with the title and ISBN entered on the Form F cover page, whether in print, online, or both. The review set submitted to the summer review institute should also correspond with what is cited on the Form F. If the review set is an online platform only, then that is what should be cited on the Form F and submitted for review by the review teams. If the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review teams.

• For this section, the publisher/provider will enter one citation per math content standard in Column D. Each citation should direct the reviewer to a specific location in the materials that best meets the standard. The citations should be concise and should allow the reviewer to easily determine that all components of the standard have been met. Each citation should cover no more than 3 pages within the materials.

o Column D: Enter one citation in Column D from the **Teacher Edition (teacher-facing core material)**. Each citation should direct the reviewer to a specific location in the materials that best meets the standard. **If necessary,** you may enter multiple, **targeted** citations in order to address standards with multiple components. Use as few citations as needed to meet the full intent of the standard. Your citations should be concise and should allow the reviewer to easily determine that the full intent and all components of the standard have been met.

o Column E: The material will be scored for alignment with each standard as "Meets expectations", "Partially meets expectations", or "Does not meet expectations" based on the citation provided.

o NOTE: You may not use a citation more than once across ALL sections of the rubric.

Criteria #	Standard	F.22 High School Algebra II Trigonometry Standards Review	Publisher/Provider Citation from Teacher Edition	Score	**If Scored D:** Reviewer's Evidence for Publisher Citation	Reviewer Citation from Student Edition/Workbook	Score	**Required:** Reviewer's Evidence	Comments, other citations, notes
DOMAIN: HS.N-CN The Complex Number System									
Cluster: Perform arithmetic operations with complex numbers.									
1	**N.CN.1**	Know there is a complex number *i* such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.							
2	**N.CN.2**	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.							
Cluster: Use complex numbers in polynomial identities and equations.									
3	**N.CN.7**	Solve quadratic equations with real coefficients that have complex solutions.							
4	**N.CN.8**	(+) Extend polynomial identities to the complex numbers. *For example, rewrite $x^2 + 4$ as $(x + 2i)(x – 2i)$.*							
5	**N.CN.9**	(+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.							
DOMAIN: HS.A-SSE Seeing Structure in Expressions									
Cluster: Interpret the structure of expressions.									
6	**HS.ASSE.1**	Interpret expressions that represent a quantity in terms of its context.★							
7	**A.SSE.1.a**	Interpret parts of an expression, such as terms, factors, and coefficients.							
8	**A.SSE.1.b**	Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*							
9	**A.SSE.2**	Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 – y^4$ as $(x^2)^2 – (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 – y^2)(x^2 + y^2)$.*							
Cluster: Write expressions in equivalent forms to solve problems.									
10	**A.SSE.4**	Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.* ★							
DOMAIN: HS.A-APR Arithmetic with Polynomials and Rational Expressions									
Cluster: Perform arithmetic operations on polynomials.									
11	**A.APR.1**	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.							
Cluster: Understand the relationship between zeros and factors of polynomials.									
12	**A.APR.2**	Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x – a$ is $p(a)$, so $p(a) = 0$ if and only if $(x – a)$ is a factor of $p(x)$.							
13	**A.APR.3**	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.							
Cluster: Use polynomial identities to solve problems.									
14	**A.APR.4**	Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 – y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.*							
15	**A.APR.5**	(+) Know and apply the Binomial Theorem for the expansion of $(x+y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.							
Cluster: Rewrite rational expressions.									
16	**A.APR.6**	Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.							
17	**A.APR.7**	(+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.							
DOMAIN: HS.A-CED Creating Equations★									
Cluster: Create equations that describe numbers or relationships.									
18	**A.CED.1**	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*							
19	**A.CED.2**	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.							
20	**A.CED.3**	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non- viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*							
21	**A.CED.4**	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law $V = IR$ to highlight resistance R.*							
DOMAIN: HS.A-REI Reasoning with equations and inequalities									
Cluster: Understand solving equations as a process of reasoning and explain the reasoning.									
22	**A.REI.2**	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.							
Cluster: Represent and solve equations and inequalities graphically.									
23	**A.REI.11**	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.★							
DOMAIN: HS.F-IF Interpreting Functions									

Cluster: Interpret functions that arise in applications in terms of the context.									
24	**F.IF.4**	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* ★							
25	**F.IF.5**	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.* ★							
26	**F.IF.6**	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.★							
Cluster: Analyze functions using different representations.									
27	**F.IF.7**	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.★							
28	**F.IF.7.b**	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.							
29	**F.IF.7.c**	Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.							
30	**F.IF.7.e**	Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.							
31	**F.IF.8**	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.							
32	**F.IF.9**	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*							
DOMAIN: HS.F-BF Building Functions									
Cluster: Build a function that models a relationship between two quantities.									
33	**F.BF.1**	Write a function that describes a relationship between two quantities. ★							
34	**F.BF.1.b**	Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*							
Cluster: Build new functions from existing functions.									
35	**F.BF.3**	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*							
36	**F.BF.4**	Find inverse functions.							
37	**F.BF.4.a**	Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. *For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x–1)$ for $x \neq 1$.*							
DOMAIN: HS.F-LE Linear, Quadratic, and Exponential Models ★									
Cluster: Construct and compare linear, quadratic, and exponential models and solve problems.									
38	**F.LE.4**	For exponential models, express as a logarithm the solution to $abct = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.							
DOMAIN: HS.F-TF Trigonometric Functions									
Cluster: Extend the domain of trigonometric functions using the unit circle.									
39	**F.TF.1**	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.							
40	**F.TF.2**	Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.							
Cluster: Model periodic phenomena with trigonometric functions.									
41	**HS.FTF.5**	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.★							
Cluster: Prove and apply trigonometric identities.									
42	**F.TF.8**	Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.							
DOMAIN: HS.S-ID - Interpreting Categorical and Quantitative Data									
Cluster: Summarize, represent, and interpret data on a single count or measurement variable.									
43	**S.ID.4**	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.							
DOMAIN: HS.S-IC - Making Inferences and Justifying Conclusions									
Cluster: Understand and evaluate random processes underlying statistical experiments.									
44	**S.IC.1**	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.							
45	**S.IC.2**	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*							
Cluster: Make inferences and justify conclusions from sample surveys, experiments, and observational studies.									
46	**S.IC.3**	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.							
47	**S.IC.4**	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.							
48	**S.IC.5**	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.							
49	**S.IC.6**	Evaluate reports based on data.							
DOMAIN: HS.S-MD - Using Probability to Make Decisions									
Cluster: Use probability to evaluate outcomes of decisions.									

50	**S.MD.6**	(+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).							
51	**S.MD.7**	(+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).							

Section 2: Math Content Review

PUBLISHERS/PROVIDERS:

- The Math Content Review tab will be completed solely by the reviewers. They will score each criterion and provide evidence for their score from the material based on their overall review of the material. You will not provide any citations for this tab.
- The material will be scored for alignment with each criterion as "Meets expectations", "Partially meets expectations", or "Does not meet expectations".

Criteria #	Grades K-12 Math Content Criteria	Score	Required: Reviewer's Evidence from Material *Include where you found the evidence in the material and what evidence you found that supports your score.*	Comments, citations, notes
FOCUS AREA 1: RIGOR AND MATHEMATICAL PRACTICES **Materials support student mastery through a grade-appropriate balance of rigor: conceptual understanding, procedural fluency, and application.** **Materials meaningfully connect the Content Standards (CCSS) with the Standards for Mathematical Practice (SMPs).**				
1	***Conceptual Understanding:*** Materials support the intentional development of students' conceptual understanding of key mathematical concepts.			
2	***Procedural Skill and Fluency:*** Materials support intentional opportunities for students to develop procedural skills and fluencies in alignment with what is called for in the grade-level standards.			
3	***Application:*** Materials support students' ability to leverage mathematical skills, concepts, representations, and strategies across a range of contexts, (including applying learning to real-world situations and new contexts).			
4	***Balance of Rigor:*** *With equitable intensity* The three aspects of rigor are not always treated together and are not always treated separately. The three aspects are balanced with respect to the standards being addressed in each grade level.			
5	***SMPs 1 and 6*** Materials support the intentional development of making sense of problems and attending to precision as required by the mathematical practice standards 1 and 6.			
6	***SMPs 2 and 3*** Materials support the intentional development of reasoning abstractly and quantitatively, along with developing viable arguments and critiquing the reasoning of others, in connection to the content standards, as required by the practice standards 2 and 3.			
7	***SMPs 4 and 5*** Materials support the intentional development of modeling and using tools, in connection to the content standards, as required by the mathematical practice standards 4 and 5.			
8	***SMPs 7 and 8*** Materials support the intentional development of seeing structure and generalizing, in connection to the content standards, as required by the mathematical practice standards 7 and 8.			

FOCUS AREA 2: STUDENT CENTERED INSTRUCTION **Materials contain embedded resources (routines, strategies, and pedagogical suggestions) to support all students in developing a positive mathematical identity, cultivating self-efficacy, and seeing themselves as a contributor to the math community.**				
9	Materials provide students with opportunities to develop self-efficacy and a positive mathematical identity through opportunities to engage in grade-level tasks using various sharing strategies and approaches.			
10	Materials provide opportunities for students to see themselves as contributors to the math community.			

FOCUS AREA 3: INSTRUCTIONAL SUPPORTS FOR ALL STAKEHOLDERS **Materials provide guidance and resources to support educators in internalizing the mathematical content and providing responsive and differentiated instruction to all students. Materials contain helpful resources to support implementation and instruction (e.g. materials for leaders, teachers, students, families/ caregivers, etc).**				
11	Teacher materials contain full, adult-level explanations and examples of the mathematics concepts within lessons so teachers can improve their own knowledge of the subject. Materials are in print or clearly distinguished/accessible as a teacher's edition in digital materials.			
12	The materials provide guidance for unit/lesson preparation to support use of the materials as intended and to further develop the teachers' own understanding of the mathematical approach.			
13	Teacher materials provide insight into students' ways of thinking with respect to important mathematical concepts, especially anticipating a variety of student responses.			
14	Materials contain strategies for informing parents or caregivers about the mathematics program and suggestions for how they can help support student progress and achievement.			

Section 2: All Content Review				
PUBLISHERS/PROVIDERS: • The All Content Review tab will be completed solely by the reviewers. They will score each criterion and provide evidence for their score from the material based on their overall review of the material. You will not provide any citations for this tab. • The material will be scored for alignment with each criterion as "Meets expectations", "Partially meets expectations", or "Does not meet expectations".				
Criteria #	**All Content Criteria Review**	Score	**Required:** Reviewer's Evidence from Material *Include where you found the evidence in the material and what evidence you found that supports your score.*	Comments, citations, notes
FOCUS AREA 1: COHERENCE **Instructional materials are coherent and consistent with the New Mexico Content Standards that all students should study in order to be college- and career-ready.**				
1	Instructional materials address the full content contained in the standards for all students by grade level.			
2	Instructional materials support students to show mastery of each standard.			
3	Instructional materials require students to engage at a level of maturity appropriate to the grade level under review.			
4	Instructional materials are coherent, making meaningful connections for students by linking the standards within a lesson and unit.			
FOCUS AREA 2: WELL-DESIGNED LESSONS **Instructional materials take into account effective lesson structure and pacing.**				
5	The Teacher Edition presents learning progressions to provide an overview of the scope and sequence of skills and concepts. The design of the assignments shows a purposeful sequencing of teaching and learning expectations.			
6	Within each lesson of the instructional materials, there are clear, measurable, standards-aligned content objectives.			
7	Within each lesson of the instructional materials, there are clear, measurable language objectives tied directly to the content objectives.			
8	Instructional materials provide focused resources to support students' acquisition of both general academic vocabulary and content-specific vocabulary.			
9	The visual design of the instructional materials (whether in print or digital) maintains a consistent layout that supports student engagement with the subject.			
10	Instructional materials incorporate features that aid students and teachers in making meaning of the text.			
11	Instructional materials provide students with ongoing review and practice for the purpose of retaining previously acquired knowledge.			
FOCUS AREA 3: RESOURCES FOR PLANNING **Instructional materials provide teacher resources to support planning, learning, and understanding of the New Mexico Content Standards.**				
12	Instructional materials provide a list of lessons in the Teacher Edition (in print or clearly distinguished/ accessible as a teacher's edition in digital materials), cross-referencing the standards addressed and providing an estimated instructional time for each lesson, chapter, and unit.			
13	Instructional materials support teachers with instructional strategies to help guide students' academic development.			
14	Instructional materials include a teacher edition/ teacher-facing material with useful annotations and suggestions on how to present the content in the student edition/student-facing material and in the supporting material.			

15	Instructional materials integrate opportunities for digital learning, including interactive digital components.			
FOCUS AREA 4: ASSESSMENT **Instructional materials offer teachers a variety of assessment resources and tools to collect ongoing data about student progress related to the standards.**				
16	Instructional materials provide a variety of assessments that measure student progress in all strands of the standards for the content under review. *(Adopted New Mexico Content Standards for 2024: NM STEM Ready Science Standards)*			
17	Instructional materials provide multiple formative and summative assessments, clearly defining which standards are being assessed through content and language objectives.			
18	Instructional materials provide scoring guides for assessments that are aligned with the standards they address, and that offer teachers guidance in interpreting student performance and suggestions for further instruction, differentiation, and/or acceleration.			
19	Instructional materials provide appropriate assessment alternatives for English Learners, Culturally and Linguistically Diverse students, advanced students, and special needs students.			
20	Instructional materials include opportunities to assess student understanding and knowledge of the standards using technology.			
FOCUS AREA 5: EXTENSIVE SUPPORT **Instructional materials give all students extensive opportunities and support to explore key concepts.**				
21	Instructional materials can be customized or adapted to meet the needs of different student populations.			
22	Instructional materials provide differentiated strategies and/or activities to meet the needs of students working below proficiency and those of advanced learners.			
23	Instructional materials provide appropriate linguistic support for English Learners and Culturally and Linguistically Diverse students, and accommodations and modifications for other special populations that will support their regular and active participation in learning content.			
24	Instructional materials provide strategies and resources for teachers to inform and engage parents, family members, and caregivers of all learners about the program and provide suggestions for how they can help support student progress and achievement.			
25	Instructional materials include opportunities for all students that encourage and support critical and creative thinking, inquiry, and complex problem-solving skills.			
FOCUS AREA 6: CULTURAL AND LINGUISTIC PERSPECTIVES **Instructional materials represent a variety of cultural and linguistic perspectives.**				
26	Instructional materials inform culturally and linguistically responsive pedagogy by affirming students' backgrounds in the materials themselves and in the student discussions.			
27	Instructional materials provide a collection of images, stories, and information, representing a broad range of demographic groups, and do not make generalizations or reinforce stereotypes.			
28	Instructional materials provide context, illustrations, and activities for students to make interdisciplinary connections and/or connections to real-life experiences and diverse cultural and linguistic backgrounds.			
FOCUS AREA 7: INCLUSION OF CULTURALLY AND LINGUISTICALLY RESPONSIVE LENS **Instructional materials highlight diversity in culture and language through multiple perspectives.**				

29	Instructional materials include tools and resources to relate the content area appropriately to diversity in culture and language.			
30	Instructional materials include tools and resources that demonstrate multiple perspectives in a specific concept.			
31	Instructional materials engage students in critical reflection about their own lives and societies, including cultures past and present in New Mexico.			
32	Instructional materials address multiple ethnic descriptions, interpretations, or perspectives of events and experiences.			

Standards for Mathematical Practice	
1	Make sense of problems and persevere in solving them.
2	Reason abstractly and quantitatively.
3	Construct viable arguments and critique the reasoning of others.
4	Model with mathematics.
5	Use appropriate tools strategically.
6	Attend to precision.
7	Look for and make use of structure.
8	Look for and express regularity in repeated reasoning.