Trigonometry

Instructional Focus: Prove and use trigonometric functions

	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Prove and use formulas (F.TF.9)	Can extend thinking beyond the standard, including tasks that may involve one of the following: • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving	Prove the addition and subtraction formulas for sine, cosine, and tangent and use the addition and subtraction formulas to solve **identities**	**Prove the addition and subtraction formulas for sine, cosine, and tangent** and use them to solve numerical problems	Use the addition, subtraction, and tangent formulas to solve numerical problems	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1
Derive area formula (G.SRT.9)		Explain how to derive the formula: $A = 1/2\ ab \sin(C)$ for the area of a triangle, and utilize it to find the area of a **polygon composed of multiple triangles**	**Explain how to derive the formula: $A = 1/2\ ab \sin(C)$ for the area of a triangle**, and utilize it to find the area of a triangle	Find the area of any triangle using the formula: $A = 1/2\ ab \sin(C)$	
Law of Sines and Cosines (G.SRT.10 and 11)		Apply the Law of Sines and the Law of Cosines to find unknown measurements in oblique triangles **and interpret solutions in context of real-world situations**	Apply the Law of Sines **and** the Law of Cosines to find unknown measurements in oblique triangles	Apply the Law of Sines **or** the Law of Cosines to find unknown measurements in oblique triangles	

F.TF.9 (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

G.SRT.9 (+) Derive the formula $A = 1/2\ ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.

G.SRT.10 (+) Prove the Laws of Sines and Cosines and use them to solve problems.

G.SRT.11 (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).