Unit 7: Right Triangles & Trigonometry

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Center & factor for dilation (G.SRT.1) Similarity in terms of dilation (G.SRT.2)	Can extend thinking beyond the standard, including tasks that may involve one of the following: • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving	**Verify** that when a side passes through the center of dilation, **the side and its image lie on the same line.** Verify that corresponding sides of the pre-image and images are **parallel and** proportional after dilation. Explain **using transformations** if two figures are similar by verifying ● corresponding angles are congruent ● corresponding sides are proportional	Given an image and the pre-image, **determine the center of dilation** Verify that corresponding sides of the pre-image and images are **proportional by finding the scale factor.** **Explain** if two figures are similar by verifying ● corresponding angles are congruent ● corresponding sides are proportional	**Perform dilation** with a given center and scale factor on a figure in the coordinate plane. **Show mathematically** if two figures are similar by verifying ● corresponding angles are congruent corresponding sides are proportional	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1
Establish AA~ (G.SRT.3)		Use AA~ to **formally prove** triangles similar (two-column, paragraph, etc.).	**Prove** AA~ using **transformations**.	**Identify** if triangles are similar by: ● AA~ ● SAS~ ● SSS~	
Side-splitter, Pythagorean, proof by similarity (G.SRT.4)		**Prove all** of the following theorems: • a line parallel to one side of a triangle divides the other two proportionally • if a line divides two sides of a triangle proportionally; then it is parallel to the third side. • Pythagorean Theorem proved using triangle similarity	**Prove 2** of the following theorems: • a line parallel to one side of a triangle divides the other two proportionally • if a line divides two sides of a triangle proportionally; then it is parallel to the third side. • Pythagorean Theorem proved using triangle similarity	**Prove1** of the following theorems: • a line parallel to one side of a triangle divides the other two proportionally • if a line divides two sides of a triangle proportionally; then it is parallel to the third side. • Pythagorean Theorem proved using triangle similarity	
Solve with similarity (G.SRT.5)		Solve **and prove** geometric problems using congruence and similarity	Solve geometric problems using congruence **and** similarity	Solve geometric problems using congruence **or** similarity	
Understand sides are related to angles in right triangles (G.SRT.6) Relationship sin and cos (G.SRT.7)		Use properties of similar right triangles to **form the definitions** of ● sine ● cosine ● tangent Explain and use the relationship between the sine of an acute angle and the cosine of its complement.	**Use side ratios** to prove angles are congruent between triangles leading to similar triangles	**Find the trig ratios** of a given right triangle	
Apply trig ratios (G.SRT.8)		Use trigonometric ratios and the Pythagorean Theorem in applied problems to find ● unknown sides ● unknown angles	**Given an image**, use trigonometric ratios **and the Pythagorean Theorem in applied problems** to find ● unknown sides ● unknown angles	**Given an image**, solve right triangles using trigonometric ratios for: ● unknown sides ● unknown angles	

Vector magnitude and direction (N.VM.1)		Use appropriate symbols for vectors and their magnitude, represent vector quantities by directed line segments, **and find the magnitude and direction of vector quantities.**	Use appropriate symbols for vectors and their magnitude and **represent vector quantities by directed line segments**.	Use appropriate **symbols for vectors and their magnitude**	
Velocity problems (N.VM.3)		Solve problems involving velocity and other quantities by converting given direction and magnitude quantities into component vectors, calculate the resultant vector, **and find the resultant direction and magnitude or the angle between vectors**	Solve problems involving velocity and other quantities by converting given direction and magnitude quantities into component vectors**, and calculate the resultant vector**	Solve problems involving velocity and other quantities by **converting given direction and magnitude quantities into component vectors**	
Add and subtract vectors (N.VM.4) Multiply vector by scalar (N.VM.5) Subtract initial and terminal (N.VM.2)		Find the components of a vector by subtracting coordinates Add, subtract vectors graphically and component-wise, **and determine the magnitude and direction** Multiply a vector by a scalar and **determine the magnitude and direction**	Find the components of a vector by subtracting coordinates Add, subtract vectors graphically **and** component-wise Multiply a vector by a scalar	Find the components of a vector by subtracting coordinates Add, subtract vectors graphically **or** component-wise Multiply a vector by a scalar	