

TCSS Unit 1 Information

Georgia Milestones Domain & Weight: 35%

Curriculum Map: [Right Triangle Trigonometry](#)

Content Descriptors:

Concept 1: Define trigonometric ratios and solve problems involving right triangles.

Content from Frameworks: [Right Triangle Trigonometry](#)

Unit Length: Approximately 10 days

[Georgia Milestones Study Guide for TCSS Unit 1](#)

GSE Accelerated GSE Geometry B/Algebra 2 -Unit 1

Curriculum Map

Unit Rational:

Students will apply similarity in right triangles to understand right triangle trigonometry. Students will use the Pythagorean Theorem and the relationship between the sine and cosine of complementary angles to solve problems involving right triangles.

Prerequisites: As identified by the GSE Frameworks

- ✓ number sense
- ✓ computation with whole numbers, integers and irrational numbers, including application of order of operations
- ✓ operations with algebraic expressions
- ✓ simplification of radicals
- ✓ basic geometric constructions
- ✓ properties of parallel and perpendicular lines
- ✓ applications of Pythagorean Theorem
- ✓ properties of triangles, quadrilaterals, and other polygons
- ✓ ratios and properties of similar figures
- ✓ properties of triangle

Length of Unit

10 Days

Concept

Define trigonometric ratios and solve problems involving right triangles.

GSE Standards

MGSE9-12.G.SRT.6

Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. (Special right triangles are included here.)

MGSE9-12.G.SRT.7

Explain and use the relationship between the sine and cosine of complementary angles.

MGSE9-12.G.SRT.8

Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

Lesson Essential Question

- What is the Pythagorean Theorem, and when is this theorem used?
- How are the sides and angles of right triangles related to each other?
- How can right triangle relationships be used to solve practical problems?

Accelerated GSE Geometry B/Algebra 2 TCSS Unit 1

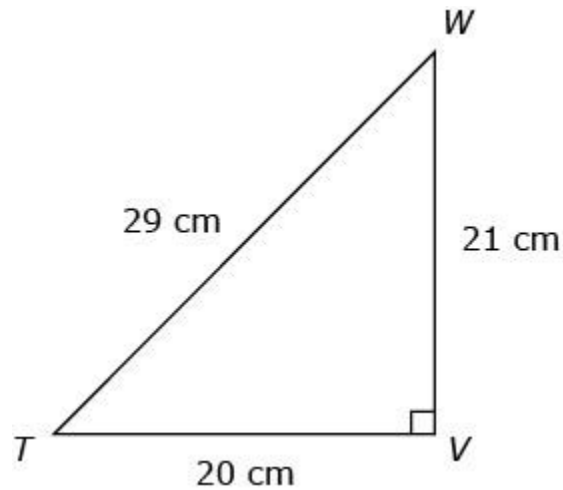
Vocabulary

Acute angles	Adjacent Angle	Adjacent Side	Angle of depression
Angle of elevation	Complementary angles	cosine	Equilateral triangle
Hypotenuse	Long leg	Opposite side	Properties, theorems, and corollaries
Pythagorean Theorem	Ratio	Right Triangle	Similar triangles
Sine	Short leg	Special Right triangles	Tangent
Θ - theta	Trigonometric ratio		

Sample Assessment Items

MGSE9-12.G.SRT.6

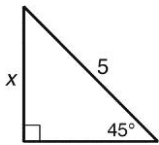
1. In the picture shown, $\triangle TVW$ and $\triangle XYZ$ are similar right triangles.



What is $\sin \angle XZY$? Round your final answer to the nearest tenth.

$$20/29 = 0.7$$

2. What is the value of x in simplest radical form?



A. 2.5

B. $\frac{5\sqrt{2}}{2}$

C. $\frac{5}{\sqrt{2}}$

D. $5\sqrt{2}$

GSE Accelerated GSE Geometry B/Algebra 2 -Unit 1

MGSE9-12.G.SRT.7

Right triangle XYZ has a right angle at X . The value of $\cos \angle Z = \frac{6}{11}$. What is the value of $\cos \angle Y$?

- A. $\frac{5}{11}$
- B. $\frac{6}{11}$
- C. $\frac{\sqrt{85}}{11}$
- D. $\frac{\sqrt{157}}{11}$

MGSE9-12.G.SRT.8

1. Jane and Mark each build ramps to jump their remote-controlled cars.

Both ramps are right triangles when viewed from the side. The incline of Jane's ramp makes a 30-degree angle with the ground, and the length of the inclined ramp is 14 inches. The incline of Mark's ramp makes a 45-degree angle with the ground, and the length of the inclined ramp is 10 inches.

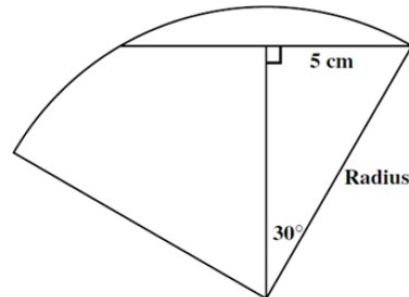
Part A: What is the horizontal length of the base of Jane's ramp and the base of Mark's ramp? Show or explain your work.

Part B: Which car is launched from the highest point? Justify your answer by showing or explaining your work.

[Scoring Rubric](#)

2. The drawing shows the measurements in a section of a circular design. How long is the radius of a circle?

- A. 10 cm
- B. 8.7 cm
- C. 7 cm
- D. 4.3 cm



Accelerated GSE Geometry B/Algebra 2 TCSS Unit 1

Resources – Concept 1

- ❖ [Instructional Strategies and Common Misconceptions](#)
- ❖ [Pythagorean Theorem Activator \(G.SRT.6\)](#)
- ❖ [Discovering Special Right Triangles – 30-60-90 \(G.SRT.6&8\)](#) [KEY](#)
- ❖ [Discovering Special Right Triangles – 45-45-90 \(G.SRT.6&8\)](#) [KEY](#)
- ❖ [Practice problems \(G.SRT.6\)](#)
- ❖ [Special Right Triangle M/C practice worksheet \(G.SRT.6\)](#)
- ❖ [Special Right Triangle practice with application problems \(G.SRT.6&8\)](#)
- ❖ [Intro to Trig. Teacher notes \(G.SRT.7\)](#)
- ❖ [Intro to Trig.- extension activity \(G.SRT.7\)](#) [KEY](#)
- ❖ [Foldable Graphic Organizer – Trig and Application \(G.SRT.7&8\)](#)
- ❖ [Basic Trig Ratio Graphic Organizer \(G.SRT.7\)](#)
- ❖ [Finding the Diagonal Activator \(G.SRT.7\)](#)
- ❖ [Solving Right Triangles teacher notes \(G.SRT.6&7\)](#)
- ❖ [Find That Side or Angle Task \(G.SRT.8\)](#) [KEY](#)
- ❖ [Trig. Application Problems \(G.SRT.8\)](#)
- ❖ [Unit Summary and Review – great resource](#)

These tasks were taken from the GSE Frameworks

- ✓ [Culminating Activity – Can use parts or all \(G.SRT.6,7,8\)](#)
- ✓ [Hypsometer Activity – Extension activity \(G.SRT.6,7,8\)](#)

Textbook Resources

- ❖ Holt McDougal – Explorations in Core Math p197-202 (G.SRT.6)
- ❖ Holt McDougal – Explorations in Core Math p206-216 (G.SRT.7)
- ❖ Holt McDougal – Explorations in Core Math p194-196, 217-224 (G.SRT.8)

Differentiated Activities

- [Right Triangles in Your Environment \(G.SRT.8\)](#)
- [Tiered Assignment – Trigonometry Applications](#)

Resources recommended for Math Support

- ❖ [Interactive Vocabulary Site \(differentiate how vocabulary is presented\)](#)
- ❖ [Trig ratio teacher notes](#)
- ❖ [student reminder notes \(G.SRT.7\)](#)

These tasks were taken from the GSE Frameworks.

- ✓ [Access Ramp - CTAE Task \(G.SRT.8\)](#)
- ✓ [Create your own triangles task \(G.SRT.6-8\)](#)

[Teacher](#) [Student](#)

GSE Accelerated GSE Geometry B/Algebra 2 -Unit 1

At the end of Unit 1 student's should be able to say "I can..." Take Away

- ✓ Understand that the side ratios of similar right triangles are the same.
- ✓ Find sine, cosine, and tangent of an acute angle of a right triangle.
- ✓ Use similarity in side ratios in right triangles to define the trigonometric ratios.
- ✓ Explain the relationship between complementary angles in a right triangle.
- ✓ Use the sine of one acute angle to find the cosine of its complementary angle.
- ✓ Use trigonometric ratios to solve right triangles.
- ✓ Use trigonometric ratios to solve application problems involving right triangles.

