Chapter 1

Trigonometric Ratios

Curriculum Expectations

Trigonometric Functions

Applying Trigonometric Ratios

C1.1 determine the exact values of the sine, cosine, and tangent of the special angles 0°, 30°, 45°, 60°, 90°, and their multiples

C1.2 determine the values of the sine, cosine, and tangent of angles from 0° to 360°, through investigation using a variety of tools (e.g., dynamic geometry software, graphing tools) and strategies (e.g., applying the unit circle; examining angles related to the special angles)

C1.3 determine the measures of two angles from 0° to 360° for which the value of a given trigonometric ratio is the same (e.g., determine one angle using a calculator and infer the other angle)

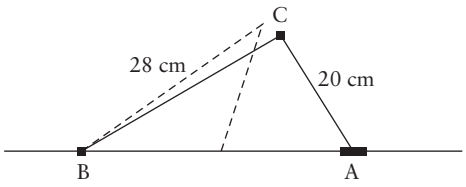
Sample problem: Determine the approximate measures of the angles from 0° to 360° for which the sine is 0.3423.

C1.4 solve multi-step problems in two and three dimensions, including those that arise from real-world applications (e.g., surveying, navigation), by determining the measures of the sides and angles of right triangles using the primary trigonometric ratios

Sample problem: Explain how you could find the height of an inaccessible antenna on top of a tall building, using a measuring tape, a clinometer, and trigonometry. What would you measure, and how would you use the data to calculate the height of the antenna?

C1.5 solve problems involving oblique triangles, including those that arise from real-world applications, using the sine law (including the ambiguous case) and the cosine law

Sample problem: The following diagram represents a mechanism in which point B is fixed, point C is a pivot, and a slider A can move horizontally as angle B changes. The minimum value of angle B is 35°. How far is it from the extreme left position to the extreme right position of slider A?



Chapter 1 Planning Chart

Section	Study Guide and Exercise Book Pages	Teacher's Resource Blackline Masters	Assessment	Tools
1.1 Sine, Cosine, and Tangent of Special Angles	1–3	• G–3 Four Quadrant Grids • T–2 *The Geometer's Sketchpad*® 4 • T–4 The TI-Nspire™ CAS Calculator • BLM 1–1 Chapter 1 Prerequisite Skills • BLM 1–3 Trigonometric Ratios of Special Angles • T1–1 How to Do Section 1.1 #15 Using TI-Nspire™ CAS • T1–2 How to Do Section 1.1 #15 Using *The Geometer's Sketchpad*®	• BLM 1–2 Chapter 1 Self-Assessment Checklist • A–4 Selecting Tools and Computational Strategies	• geometry set • four quadrant grid paper • computer with dynamic geometry software • graphing calculator
1.2 Sine, Cosine, and Tangent of Angles from 0° to 360°	4–7	• G–3 Four Quadrant Grids • T–2 *The Geometer's Sketchpad*® 4 • T–4 The TI-Nspire™ CAS Calculator • T1–1 How to Do Section 1.1 #15 Using TI-Nspire™ CAS • T1–2 How to Do Section 1.1 #15 Using *The Geometer's Sketchpad*®	• A–2 Reasoning and Proving	• geometry set • four quadrant grid paper • computer with dynamic geometry software • graphing calculator
1.3 Trigonometry of Angles	8–10	• G–3 Four Quadrant Grids • T–2 *The Geometer's Sketchpad*® 4 • T–4 The TI-Nspire™ CAS Calculator	• A–6 Representing	• four quadrant grid paper • graphing calculator • computer with dynamic geometry software
1.4 Solving Problems Using Primary Trigonometric Ratios	11–14	• T–2 *The Geometer's Sketchpad*® 4 • T–4 The TI-Nspire™ CAS Calculator	• A–7 Communicating	• geometry set • grid paper • metre stick or tape measure • computer with dynamic geometry software • graphing calculator
1.5 Solving Problems Using the Sine Law	15–18	• T–2 *The Geometer's Sketchpad*® 4 • T–4 The TI-Nspire™ CAS Calculator • T1–3 Understanding the Ambiguous Case Using TI-Nspire™ CAS • T1–4 Understanding the Ambiguous Case Using *The Geometer's Sketchpad*®	• A–1 Problem Solving	• geometry set • strips of cardboard • computer with dynamic geometry software • graphing calculator
1.6 Solving Problems Using the Cosine Law	19–22	• T–2 *The Geometer's Sketchpad*® 4 • T–4 The TI-Nspire™ CAS Calculator • BLM 1–4 Chapter 1 Review • BLM 1–5 Chapter 1 Practice Test • BLM 1–6 Chapter 1 Case Study	• A–5 Connecting	• geometry set • string • tape • computer with dynamic geometry software • graphing calculator

Chapter 1 Blackline Masters Checklist

	BLM	Title	Purpose
1.1 Sine, Cosine, and Tangent of Special Angles			
	G–3	Four Quadrant Grids	Student Support
	T–2	*The Geometer's Sketchpad*® 4	Technology
	T–4	The TI-Nspire™ CAS Calculator	Technology
	A–4	Selecting Tools and Computational Strategies	Assessment
	BLM 1–1	Chapter 1 Prerequisite Skills	Practice
	BLM 1–2	Chapter 1 Self-Assessment Checklist	Assessment
	BLM 1–3	Trigonometric Ratios of Special Angles	Student Support
	T1–1	How to Do Section 1.1 #15 Using TI-Nspire™ CAS	Technology
	T1–2	BLM T1–2 How to Do Section 1.1 #15 Using *The Geometer's Sketchpad*®	Technology
1.2 Sine, Cosine, and Tangent of Angles from 0° to 360°			
	G–3	Four Quadrant Grids	Student Support
	T–2	*The Geometer's Sketchpad*® 4	Technology
	T–4	The TI-Nspire™ CAS Calculator	Technology
	A–2	Reasoning and Proving	Assessment
	T1–1	How to Do Section 1.1 #15 Using TI-Nspire™ CAS	Technology
	T1–2	How to Do Section 1.1 #15 Using *The Geometer's Sketchpad*®	Technology
1.3 Trigonometry of Angles			
	G–3	Four Quadrant Grids	Student Support
	T–2	*The Geometer's Sketchpad*® 4	Technology
	T–4	The TI-Nspire™ CAS Calculator	Technology
	A–6	Representing	Assessment
1.4 Solving Problems Using Primary Trigonometric Ratios			
	T–2	*The Geometer's Sketchpad*® 4	Technology
	T–4	The TI-Nspire™ CAS Calculator	Technology
	A–7	Communicating	Assessment
1.5 Solving Problems Using the Sine Law			
	T–2	*The Geometer's Sketchpad*® 4	Technology
	T–4	The TI-Nspire™ CAS Calculator	Technology
	A–1	Problem Solving	Assessment
	T1–3	Understanding the Ambiguous Case Using TI-Nspire™ CAS	Technology
	T1–4	Understanding the Ambiguous Case Using *The Geometer's Sketchpad*®	Technology
1.6 Solving Problems Using the Cosine Law			
	T–2	*The Geometer's Sketchpad*® 4	Technology
	T–4	The TI-Nspire™ CAS Calculator	Technology
	A–5	Connecting	Assessment
	BLM 1–4	Chapter 1 Case Study	Practice
	BLM 1–5	Chapter 1 Review	Practice
	BLM 1–6	Chapter 1 Practice Test	Practice
	BLM 1–7	Chapter 1 BLM Answers	Answers