Coach's Corner Assessment

Coach's Corner provides practice and allows you to self-reflect on your conceptual understanding of the *Lesson* skills. Assessment of your work in *Coach's Corner* will be combined into two overall completion marks, one for *Workbook A* and one for *Workbook B*. Your work for *Coach's Corner* in each *Workbook* will be assessed according to the rubric provided.

Category	Strategy and Procedures	Response to Questions
	The student...	*The student...*
4	• uses efficient and effective strategies to solve the problem(s)	• provides detailed explanations and follows directions appropriately to complete all questions
3	• uses effective strategies to solve the problem(s)	• provides clear explanations and follows directions adequately to complete most questions
2	• uses effective strategies inconsistently to solve the problem(s)	• provides incomplete explanations and follows some directions to complete a few questions
1	• does not use effective strategies to solve the problem(s)	• provides incomplete explanations and does not follow directions to complete some questions

Complete *Coach's Corner* exercises using your best work, showing all relevant steps needed to arrive at your solution. Refer to the *Module* to review lesson instructions. Contact your teacher for assistance or clarification as needed, or to investigate the topic further.

Check and correct your work using the solutions provided in *Equipment Room* in the *Module*.

Coach's Corner is worth 8 marks.

After you have assessed your work, reflect on your understanding of the concepts addressed in the *Coach's Corner* exercises in the table provided.

Unit 4: Geometry Lesson 4.4

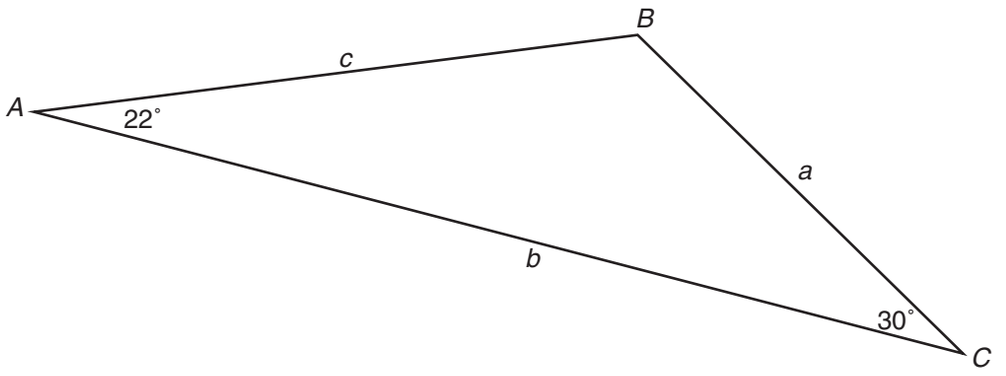
Coach's Corner – VI

1. The sine law uses three known pieces of information in a triangle to determine a fourth piece.

   a. Sketch a triangle with three labeled known values and one labeled unknown value where the sine law could be used to determine the unknown.

   b. Sketch a triangle with three labeled known values and one labeled unknown value where the sine law could **not** be used to determine the unknown.

2. If c is 20 km, determine a.



3. In ΔABC, $\angle B = 131°$, $AB = 70$, and $AC = 380$.

   a. Draw a diagram to represent the given information.

   b. Determine the measure of $\angle C$.

4. Enid was trying to determine the value of B in ΔABC and made the following table for the triangle.

A	
B	?
C	114°
a	
b	17
c	10

She has solved for B as shown below, but when she enters the final expression into her calculator, she receives an error.

$$\frac{\sin B}{b} = \frac{\sin C}{c}$$
$$\frac{\sin B}{17} = \frac{\sin 114^\circ}{10}$$
$$\sin B = \frac{17 \sin 114^\circ}{10}$$
$$B = \sin^{-1}\left(\frac{17 \sin 114^\circ}{10}\right)$$

a. Explain why Enid's calculator is displaying an error. (Hint: Between what two values are all sine ratios?)

b. Draw Enid's triangle using the table. What is wrong with the diagram?

5. A guy wire is a cable that is attached to a structure and to the ground to add stability to the structure. Guy wires are commonly used on towers and poles. The angle formed between the guy wire and the tower, and the location where the guy wire is attached to the tower both affect how much stability will be added by the guy wire.

   A telephone pole has been installed vertically on the side of a hill so the pole makes a 112° angle with the ground on the side of the pole where the guy wire is attached. The pole is 14 m tall, and the guy wire, which is attached to the top of the pole, is 25 m long.

   a. Draw a diagram to represent this scenario.

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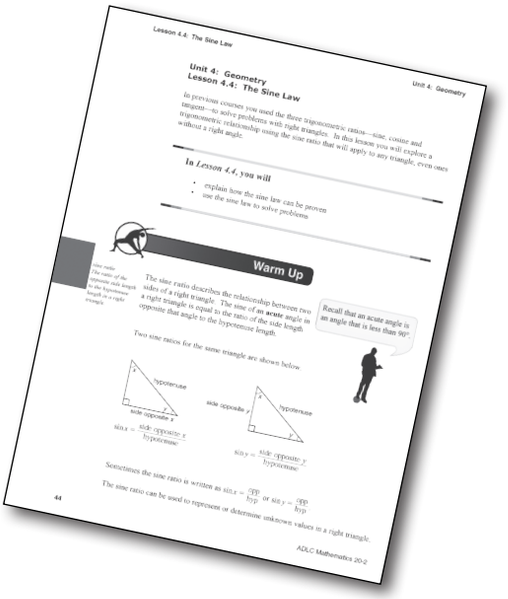
   b. Determine the angle between the pole and the guy wire.

Please go to the *Equipment Room* to check your solutions before proceeding to *Game On!*, on the next page of this *Workbook*.


Lesson 4.4: The Sine Law

Unit 4: Geometry
Lesson 4.4: The Sine Law

Unit 4: Geometry

In previous courses you used the three trigonometric ratios—sine, cosine, and tangent—to solve problems with right triangles. In this lesson you will explore a trigonometric relationship using the sine ratio that will apply to any triangle, even ones without a right angle.

In Lesson 4.4, you will

- explain how the sine law can be proven
- use the sine law to solve problems

Warm Up

The sine ratio describes the relationship between two sides of a right triangle. The sine of an **acute** angle in a right triangle is equal to the ratio of the side length opposite that angle to the hypotenuse length.

Recall that an acute angle is an angle that is less than 90°.

Two sine ratios for the same triangle are shown below.

hypotenuse
side opposite x
$\sin x = \frac{\text{side opposite } x}{\text{hypotenuse}}$

side opposite y
hypotenuse
$\sin y = \frac{\text{side opposite } y}{\text{hypotenuse}}$

Sometimes the sine ratio is written as $\sin x = \frac{\text{opp}}{\text{hyp}}$ or $\sin y = \frac{\text{opp}}{\text{hyp}}$.

The sine ratio can be used to represent or determine unknown values in a right triangle.

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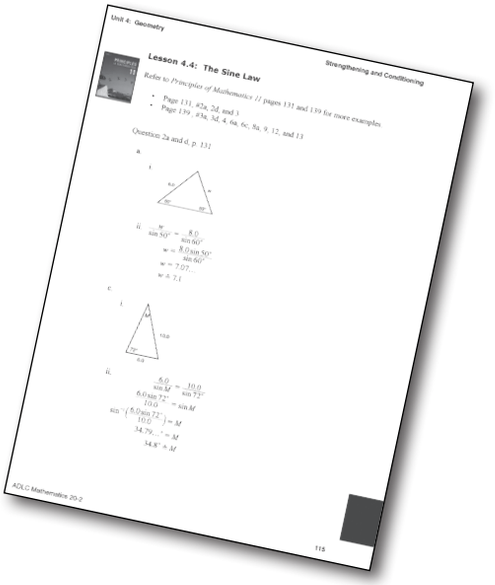
After you have assessed your work, reflect on your understanding of the concepts addressed in the *Coach's Corner* exercises in the table provided.

Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			
4			
5			

Note: Before you complete *Game On!*, you may review your skills and get more practice by completing the following problems in *Principles of Mathematics 11*.

- Page 131, #2a, 2d, and 3
- Page 139, #3a, 3d, 4, 6a, 6c, 8a, 9, 12, and 13

Check your work in *Strengthening and Conditioning*.


Unit 4: Geometry

Strengthening and Conditioning

Lesson 4.4: The Sine Law

Refer to *Principles of Mathematics 11* pages 131 and 139 for more examples.

- Page 131, #2a, 2d, and 3
- Page 139, #3a, 3d, 4, 6a, 6c, 8a, 9, 12, and 13

Question 2a and d, p. 131

a.

i.

ii. $\frac{w}{\sin 50^\circ} = \frac{8.0}{\sin 60^\circ}$

$w = \frac{8.0 \sin 50^\circ}{\sin 60^\circ}$

$w = 7.07\ldots$

$w \doteq 7.1$

c.

i.

ii. $\frac{6.0}{\sin M} = \frac{10.0}{\sin 73^\circ}$

$6.0 \sin 73^\circ = \sin M$

$\sin^{-1}\left(\frac{6.0 \sin 73^\circ}{10.0}\right) = M$

$34.79\ldots^\circ = M$

$34.8^\circ \doteq M$

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