ALBERTA DISTANCE LEARNING CENTRE

Mathematics 10-3

MAT1793

Unit B: Right Angled Triangles

Chapter 4 Lesson 1

Student's Questions and Comments

FOR STUDENT USE ONLY

Student Name:

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Assigned to

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Marked by

_____

Date received

_____

Summary

	Marks Earned	Total Possible Marks	Percent
Lesson 1		28	

Teacher's Comments:

_____

Teacher's Signature

REVISED March 2020

CANADIAN CATALOGUING IN PUBLICATION DATA

MAT1793
Mathematics 10-3
ISBN: 978-1-927090-94-7
Workbook 4

4601 - 63 Avenue
Barrhead, Alberta Canada T7N 1P4

Printed in Canada

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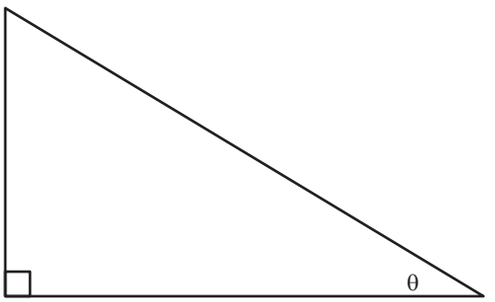
Lesson Assignment

This assignment includes short answer questions. Be sure to show all necessary work. You may ask for clarification from your teacher, but you will not be given the answer.

Lesson 1

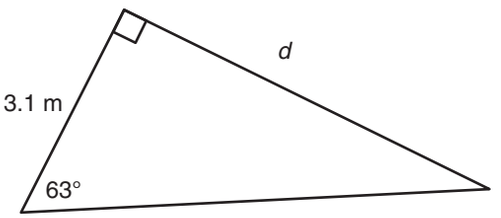
Include a **formula** as part of your work where applicable.

(1) 1. On the right triangle shown, label the sides using the terms opposite and adjacent, in relation to angle θ.

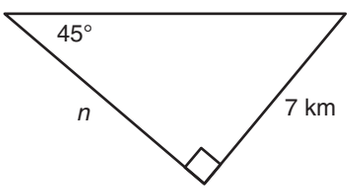


2. Determine the value of the variable in each of the following triangles.

(3) a.

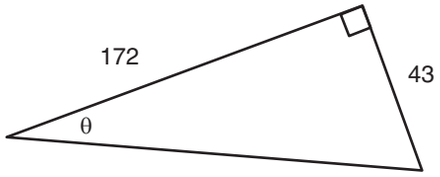


(3) b.

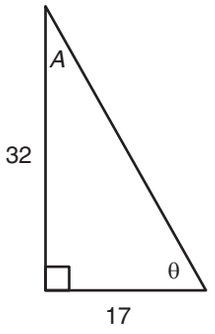


3. Determine the measures of the unknown angles, to the nearest degree, in each of the following diagrams.

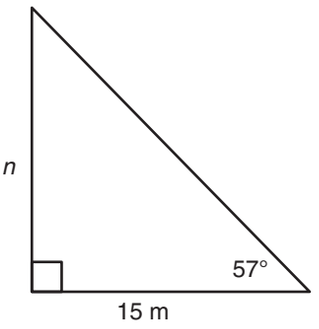
(3) a.



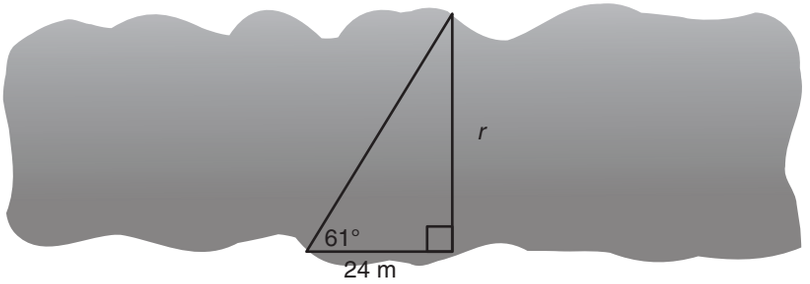
(5) b.



(3) 4. A wire supporting a radio tower is secured to the ground 15 m from the base of the tower. If the angle between the ground and the wire is 57°, what is the height of the tower?



(3) 5. Determine the width of the river, *r*.



6. Dylan was asked to determine the height of the flagpole, as shown.
His work is shown.

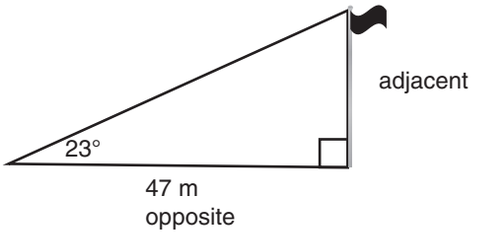
$$\tan\theta = \frac{\text{opposite}}{\text{adjacent}}$$

$$\tan 23^\circ = \frac{47\text{ m}}{y}$$

$$y \times \tan 23^\circ = \frac{47\text{ m}}{\cancel{y}} \times \cancel{y}$$

$$\frac{y \times \cancel{\tan 23^\circ}}{\cancel{\tan 23^\circ}} = \frac{47\text{ m}}{\tan 23^\circ}$$

$$y \doteq 110.7\text{ m}$$



The height of the flagpole is approximately 110.7 m.

(1) a. What error did Dylan make?

(3) b. Correct his error to find the actual height of the flagpole.

(3) 7. For safety, a ladder must not create an angle greater than 75° with the ground.

Lisa leaned her ladder against a wall so that the bottom of the ladder was 3 ft from the base of the wall, and the top of the ladder reached 9 ft up the wall. Is Lisa's ladder safely positioned? Explain.

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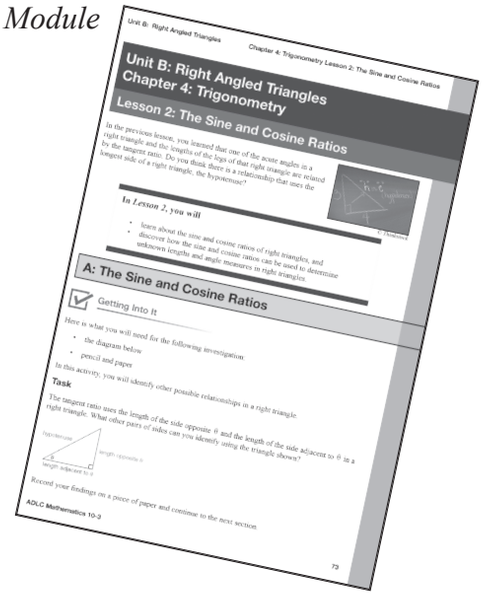
You have completed *Lesson 1 Assignment*. Please return to the *Module* and continue your exploration with *Lesson 2*.


Unit B: Right Angled Triangles
Chapter 4: Trigonometry Lesson 2: The Sine and Cosine Ratios
Unit B: Right Angled Triangles
Chapter 4: Trigonometry
Lesson 2: The Sine and Cosine Ratios
In the previous lesson, you learned that one of the acute angles in a right triangle and the lengths of the legs of that right triangle are related by the tangent ratio. Do you think there is a relationship that uses the longest side of a right triangle, the hypotenuse?
In *Lesson 2*, you will
learn about the sine and cosine ratios of right triangles, and
discover how the sine and cosine ratios can be used to determine unknown lengths and angle measures in right triangles.
A: The Sine and Cosine Ratios
Getting Into It
Here is what you will need for the following investigation:
the diagram below
pencil and paper
In this activity, you will identify other possible relationships in a right triangle.
Task
The tangent ratio uses the length of the side opposite θ and the length of the side adjacent to θ in a right triangle. What other pairs of sides can you identify using the triangle shown?
Record your findings on a piece of paper and continue to the next section.
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Revised March 2020