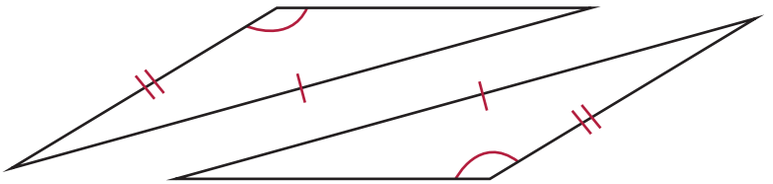
Unit 4: Geometry Lesson 4.3

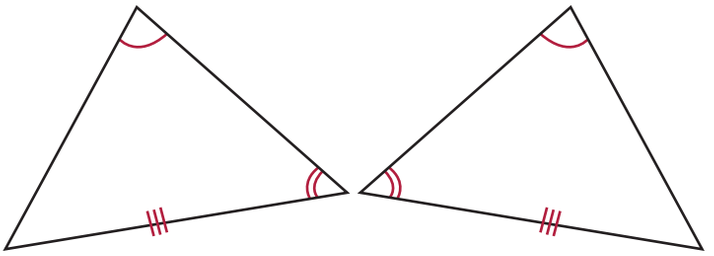
Game On!

(2) 1. Can it be concluded that the following pairs of triangles are congruent? Explain.

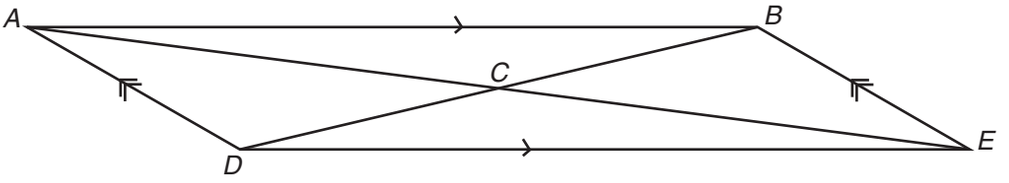
a.



b.



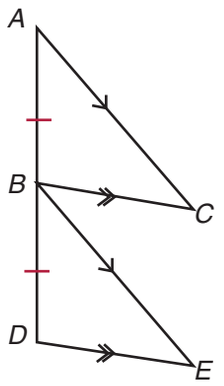
(2) 2. Troy has written a proof showing that the diagonals of a parallelogram are equal in length. The diagonals of a parallelogram are not necessarily equal so Troy must have made an error. Identify and explain his error.



Statement	Justification
$AB = ED$	Opposite sides of parallelogram
$\angle BAE = \angle AED$	Alternate interior angles
$\angle ABD = \angle BDE$	Alternate interior angles
$\Delta ABC \cong \Delta EDC$	ASA
$BC = EC$	Corresponding sides of congruent triangles
$AC = DC$	Corresponding sides of congruent triangles
$AE = BD$	$AC + CE = DC + CB$

(3) 3. Explain why knowing a combination of four pairs of equal sides or equal angles guarantees one of the congruence relationships.

(4) 4. Prove $\Delta ABC \cong \Delta BDE$.



Statement	Justification

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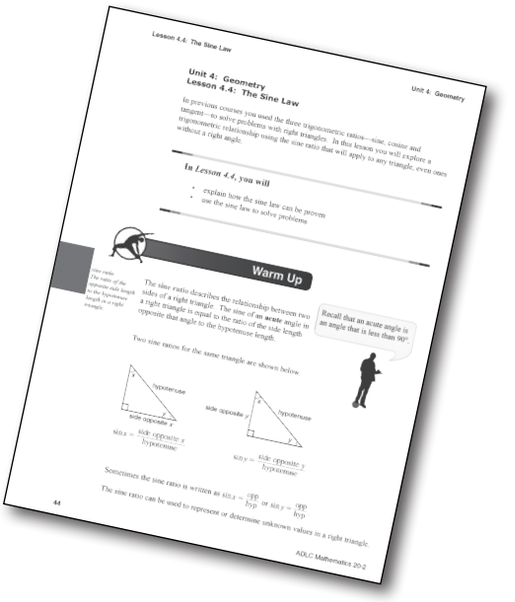
You have completed *Lesson 4.3 Game On!* Please review all work in *Workbook 4A* to ensure it is your best work. Submit *Workbook 4A* for marking at this time and proceed to *Lesson 4.4* in the *Module*.


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

sine ratio
the ratio of the opposite side length to the hypotenuse length in a right triangle

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
side opposite y

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

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

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

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

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End Of Workbook 4A