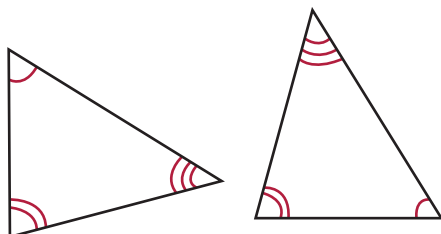## Unit 4: Geometry Lesson 4.3
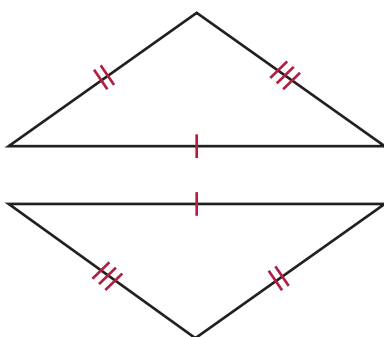
Coach's Corner – V

1. Can it be concluded that the following triangles are congruent? Explain.
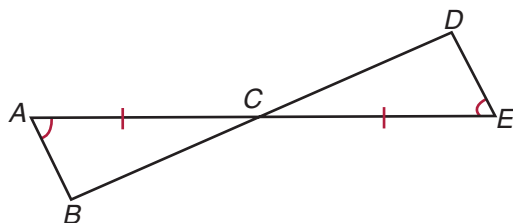
    a.

    It cannot be concluded that these triangles are congruent. This is an example of an AAA relationship and it is possible to draw a larger or smaller triangle using the same angle sizes.

    b.

    These triangles are congruent by SSS.

2. Prove that the two triangles in the diagram are congruent.

Statement	Justification
$\angle BAC = \angle DEC$	Given
$AC = EC$	Given
$\angle ACB = \angle ECD$	They are opposite angles
$\triangle ABC \cong \triangle EDC$	ASA

3. Convert the proof from Example 3 of *Lesson 4.3* into a two column proof.

Statement	Justification
$BD = CF$	Given
$\angle CFB = \angle BDC$	They are corresponding angles of congruent triangles
$BC = BC$	It is the same line segment
$\triangle BCD \cong \triangle CBF$	SAS
$\angle DBC = \angle FCB$	They are corresponding angles of congruent triangles
$\angle ABC = \angle ACB$	Supplementary angles are equal.

4. In the diagram, knowing that $\triangle ACD$ is isosceles does not provide enough information to prove $\triangle ADE \cong \triangle DAB$.

a. List an additional piece of information that would allow for a proof that $\triangle ADE \cong \triangle DAB$.
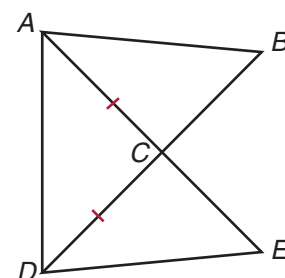
There are multiple pieces of information that can be used to prove the congruence. Some examples are $AE = DB$, $\angle BAD = \angle EDA$, or $\angle B = \angle E$.

b. Use this new piece of information to prove $\triangle ADE \cong \triangle DAB$.

Proofs will vary. A sample is shown for $AE = DB$.

Statement	Justification
$\angle EAD = \angle BDA$	They are the angles across equal sides of an isosceles triangle
$AD = AD$	It is the same side
$AE = DB$	Given
$\triangle ADE \cong \triangle DAB$	SAS

Please complete *Lesson 4.3 Game On!* located in *Workbook 4A* before proceeding to *Lesson 4.4*.