# Checking for Identical Triangles
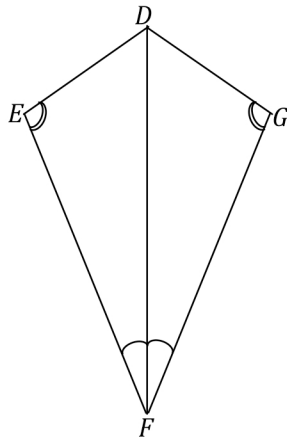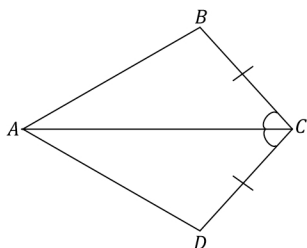
Are triangles _____ and _____ identical, not identical, or not necessarily identical?  Justify your reasoning.  If the relationship between the two triangles yields information that establishes a condition, describe the information.  If the triangles are identical, write a triangle correspondence that matches the sides and angles.
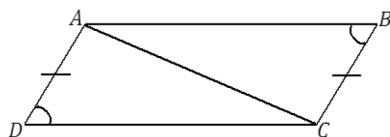
In the following problems, determine whether the triangles are identical, not identical, or whether they are not necessarily identical; justify your reasoning. If the relationship between the two triangles yields information that establishes a condition, describe the information. If the triangles are identical, write a triangle correspondence that matches the sides and angles.
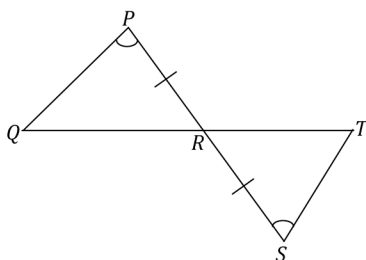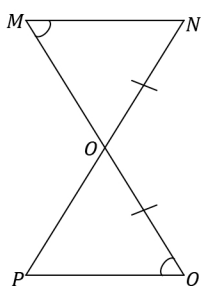
1.



2.



3.



4.



5.

6.



7.



8.  Are there any identical triangles in this diagram?



9.



10.
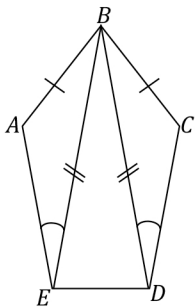
© 2014 Common Core, Inc. Some rights reserved. **commoncore.org**

CC BY-NC-SA

This work is licensed under a
Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

Are triangles _____ and _____ identical, not identical, or not necessarily identical?  Justify your reasoning.  If the relationship between the two triangles yields information that establishes a condition, describe the information.  If the triangles are identical, write a triangle correspondence that matches the sides and angles.
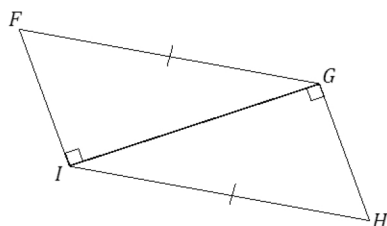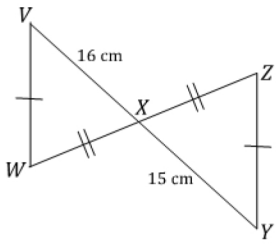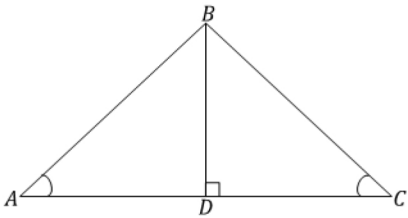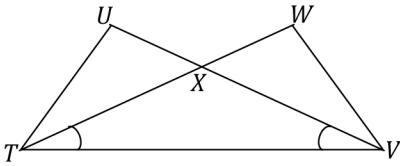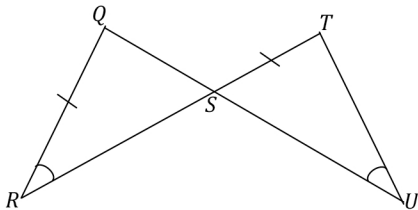
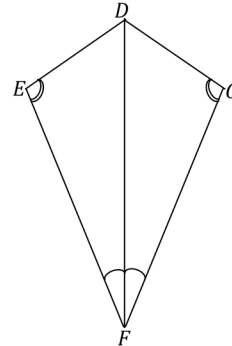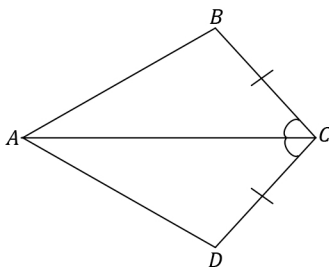*These triangles are identical by the two angles and side opposite a given angle condition. The triangle correspondence _____ matches the two pairs of equal angles and one pair of equal sides condition.  The pair of equal sides, _____, is common to both triangles.*

In the following problems, determine whether the triangles are identical, not identical, or whether they are not necessarily identical; justify your reasoning.  If the relationship between the two triangles yields information that establishes a condition, describe the information.  If the triangles are identical, write a triangle correspondence that matches the sides and angles.
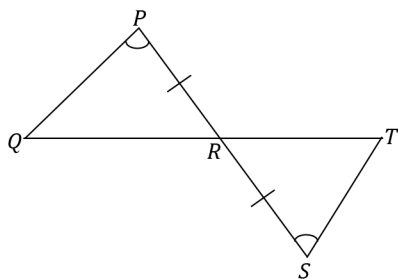
**1.**

*These triangles are identical by the two sides and the included angle condition.  The triangle correspondence _____ matches two pairs of equal sides and one pair of equal angles.  One of the equal pairs of sides is shared side _____.*

**2.**
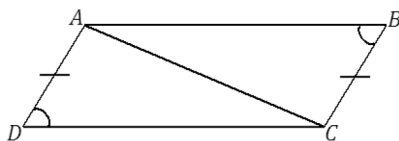
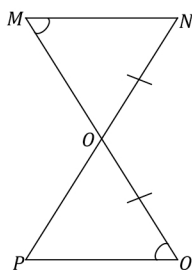*These triangles are not necessarily identical.  The triangles have a pair of marked, equal sides, and a pair of marked, acute, equal angles; side _____ is also common to both triangles.  The triangles satisfy the two sides and non-included acute angle condition, which does not determine a unique triangle.*
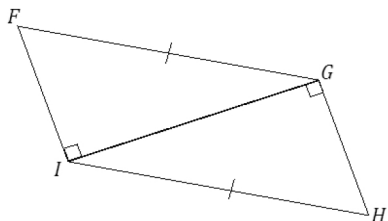
**3.**



These triangles are identical by the two angles and included side condition. The triangle correspondence △_____ matches the two pairs of equal angles and one pair of equal sides. One pair of equal angles is the vertical angle pair _____.

**4.**



These triangles are not necessarily identical. A correspondence that matches up the equal pair of sides and the equal pair of vertical angles does not match the equal, marked pair of angles.
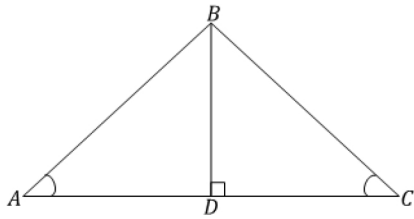
**5.**



The triangles are identical by the two sides and non-included _____ (or greater) angle condition. The correspondence △_____ matches two pairs of equal sides and one pair of equal angles. One of the two pairs of equal sides is side _____, which is common to both triangles.
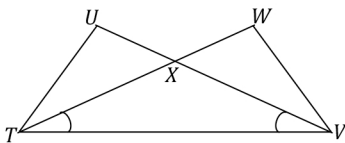
**6.**
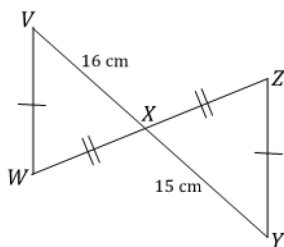


The triangles are not identical since a correspondence that matches the two marked equal pairs of sides also matches sides _____ and _____, which are not equal in length.

**7.**



*These triangles are identical by the two angles and side opposite a given angle condition.  The correspondence _____ matches the two pairs of equal angles and one pair of equal sides.  The pair of equal sides is the common side, ___.  We know _____ must be a right angle since _____ is a right angle, and they are both on a line and of course angles _____ and _____ are equal in measurement.*

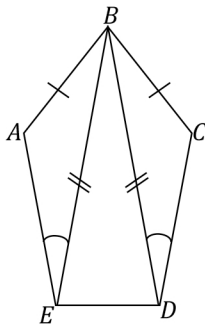**8.** Are there any identical triangles in this diagram?



*Triangles _____ and _____ are not necessarily identical; we only know about a single pair of equal angles in the triangles, which are vertical angles.  Triangles _____ and _____ are also not necessarily identical.  We only know about a single pair of equal angles and a side common to both triangles, which is not enough information to determine the triangles as identical or non-identical.*

**9.**
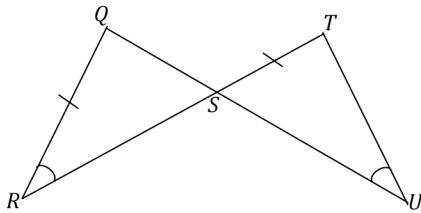


*The triangles are not necessarily identical since there is no correspondence that matches the two marked equal pairs of sides as well as the two pairs of equal angles.  One of the pairs of equal angles is the pair of vertical angles.*

**10.**



*Triangles _____ and _____ are not necessarily identical. The triangles satisfy the two sides and non-included acute angle condition, which does not determine a unique triangle.*