# NOTES 5.2 & 5.4 – CONGRUENT TRIANGLES

Objective:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**CONGRUENT TRIANGLES:**

**EXAMPLE 1: If , then…**

**\_\_\_\_\_\_ \_\_\_\_\_\_**

**\_\_\_\_\_\_ \_\_\_\_\_\_**

**\_\_\_\_\_\_ \_\_\_\_\_\_**

**EXAMPLE 2:** **If , determine whether the following statements are**

**TRUE or FALSE.**

|  |  |  |
| --- | --- | --- |
| **STATEMENT** | **TRUE** | **FALSE** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**EXAMPLE 3:**  **Use the given figure and information to name three pairs of**

**congruent angles and three pairs of congruent sides.**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_**

**EXAMPLE 4:**  **Use the given figure and information to name three pairs of**

**congruent angles and three pairs of congruent sides.**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_**

**EXAMPLE 5: Using the diagram, complete the congruence statement.**

**\_\_\_\_\_\_\_\_\_**

**EXAMPLE 6: If , , , , and , find**

**the value of ‘’.**

**If two angles of one triangle are congruent to two angles of another triangle, then the third pair of angles are congruent.**

**EXAMPLE 7: Find and .**

NOTES 5.2 & 5.4 (Continued)

**ISOSCELES & EQUILATERAL TRIANGLES**

|  |  |
| --- | --- |
| **THEOREM** | **DIAGRAM** |
| **ISOSCELES TRIANGLE THEOREM**  If two sides of a triangle are congruent, then the angles opposite the sides are congruent. | **If , then .** |
| **CONVERSE OF ISOSCELES TRIANGLE THEOREM**  If two angles of a triangle are congruent, then the sides opposite those angles are congruent. | **If , then .** |

**EXAMPLES:**

|  |  |
| --- | --- |
| 1. **\_\_\_\_\_\_\_\_\_\_\_** | 1. **\_\_\_\_\_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_\_\_\_\_** | 1. **\_\_\_\_\_\_\_\_\_\_\_** |

|  |  |
| --- | --- |
| **COROLLARY** | **DIAGRAM** |
| **EQUILATERAL TRIANGLE COROLLARY**  If a triangle is equilateral, then it is equiangular. | **If ,**  **then .** |
| **EQUIANGULAR TRIANGLE COROLLARY**  If a triangle is equiangular, then it is equilateral. | **If ,**  **then .** |

**EXAMPLES:**

|  |  |
| --- | --- |
| 1. **\_\_\_\_\_\_\_\_\_\_\_** | 1. **\_\_\_\_\_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_\_\_\_\_** | 1. **\_\_\_\_\_\_\_\_\_\_\_** |