**GUIDED EXAMPLE 1**

Are the triangles similar? How do you know? Write a similarity statement.

|  |  |
| --- | --- |
| **AA Similarity Theorem** | **SSS Similarity Theorem** |
| **Given:**  Because, and ∠*D* are alternate interior angles and are therefore ≅.  The same is true for ∠*B* and ∠*C.*  ***So, by AA ~ Postulate, ∆ABX ~ ∆DCX*** | Compare the ratios of the lengths of sides:    ***So, by SSS ~ Theorem, ∆ABC ~ ∆XYZ*** |
| **NOTE:** ***There are a total of three (3) similarity theorems. The only not addressed today is SAS Similarity Theorem. This one will be addressed on your homework.*** | |

**Exercises**

**Determine whether the triangles are similar. If so, write a similarity statement and name the postulate or theorem you used. If not, explain.**

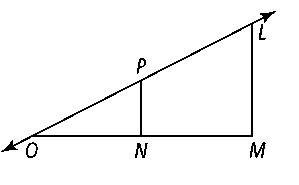
******1. 2. 3.**

**4. 5. 6.**

**7.** Are all equilateral triangles similar? Explain.

**8.** Are all isosceles triangles similar? Explain.

**9.** Are all congruent triangles similar? Are all similar triangles congruent? Explain.

**GUIDED EXAMLE #2**

Provide the reason for each step in the two-column proof.

**Given: **

1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Reasons**

**Statements**

**Prove:** ∆*LMO* ~ ∆*PNO*

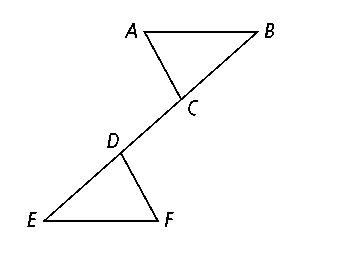
1) 

2) *∠PNO* and ∠*LMO* are right *.*

3) ∠*PNO* ***=*** *∠LMO*

4) ∠*O* **≅** ∠*O*

5) *∆LMO* ***~*** *∆PNO*

**10. Developing Proof** Complete the proof by filling in the blanks.

**Given: **

**Prove:** ∆*ABC* ~ ∆*FED*

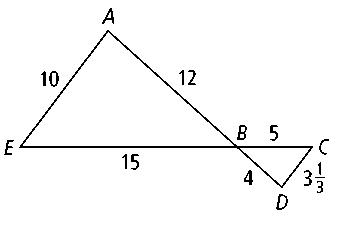
**Proof: **and  are given.

 is a transversal by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

∠*E* ≅ ∠*B* by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Similarly, ∠*EDF* ≅ ∠*BCA* by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

So, ∆*ABC* ~ ∆*FED* by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**11.** Write a paragraph proof.

**Given: **and intersect at *B.*

**Prove:** ∆*ABE* ~ ∆*DBC*