**Math III Unit 6: LINES, ANGLES, QUADRILATERALS, & PROOFS  
Lauren Winstead, Heritage High School**

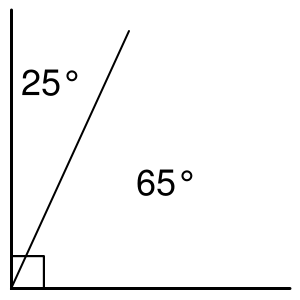
**Main topics of instruction:**

1) Lines, angles, and intro to proofs

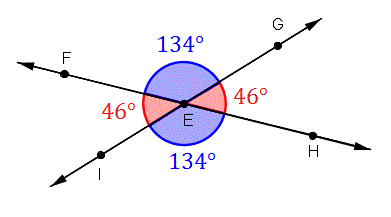
2) Intro to flow charts and two-column proofs

3) Parallelograms

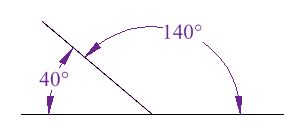
**Day 1: Lines, Angles, & Intro to Proofs**



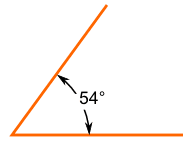
* Angles whose measures have a sum of 90° are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



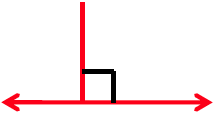
* Vertical angles have equal measures, so they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

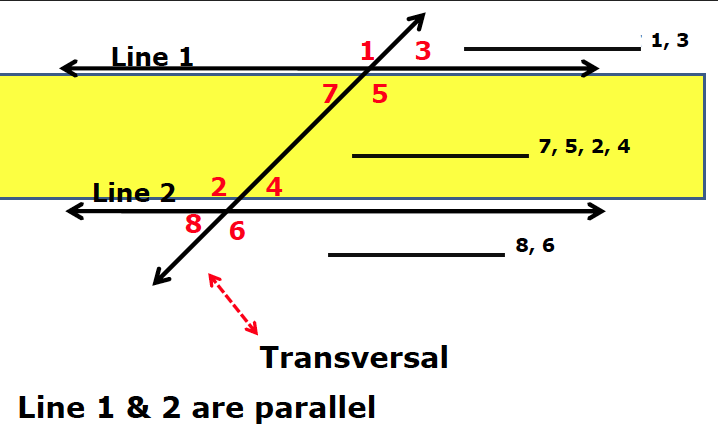


* Angles whose measures have a sum of 180° are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



* An angle that measures less than 90° is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angle.



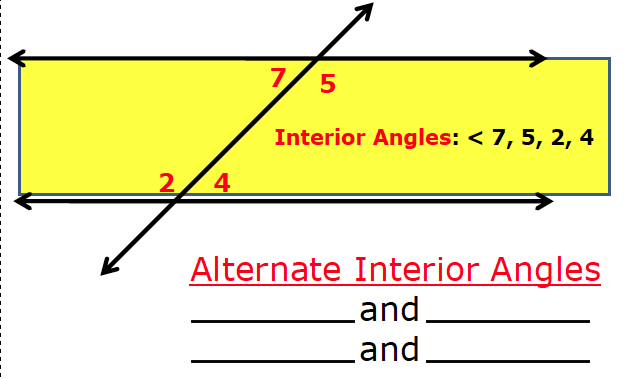
Parallel lines do not intersect, but **perpendicular lines intersect at a** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

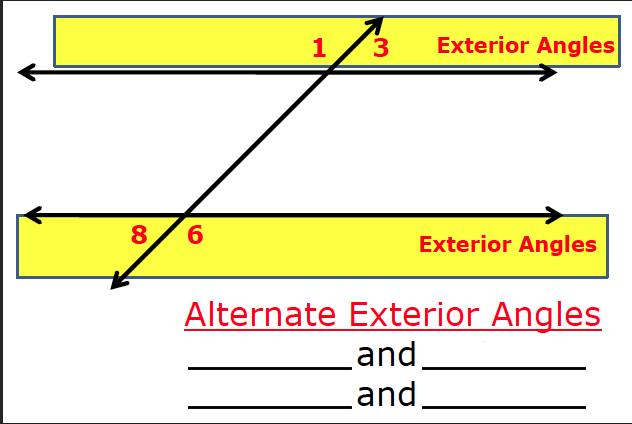
A **transversal** is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

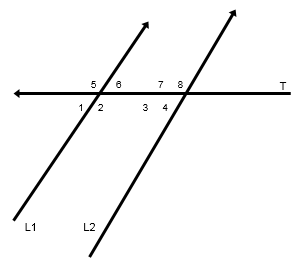
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Alternate angles** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



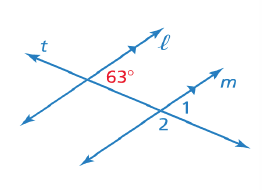


 **You try!** If and ,

find the measures of all angles.

**Corresponding angles** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

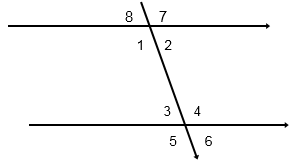
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



The angle and are corresponding angles, because they are matching pairs created by two parallel lines and a transversal.

**Intro to Two-**

**lumn Proofs**



**You try! Given**  and ,

find all the angles.

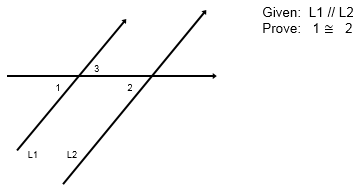
**THEOREMS:**

* **If two lines are parallel, then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are congruent.**
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* **If two lines are parallel, then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are congruent.**

**The CONVERSE is also true:**

* **If alternate interior/alternate exterior/corresponding angles are congruent, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

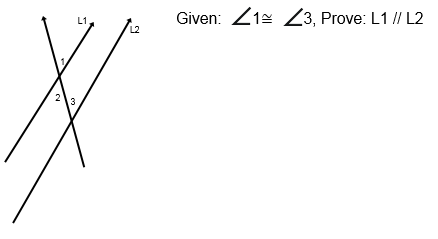
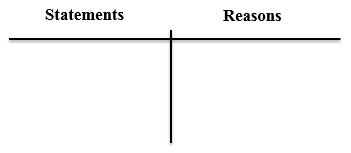
**Let’s try some proofs!**



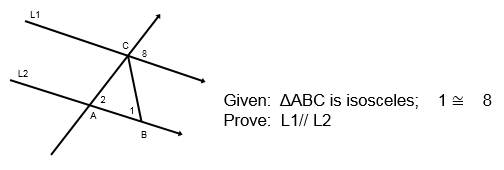
**Reasons**

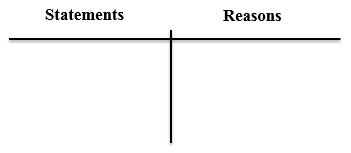
**Statements**

**Try on your own:**

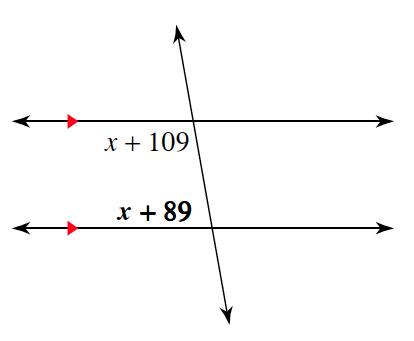


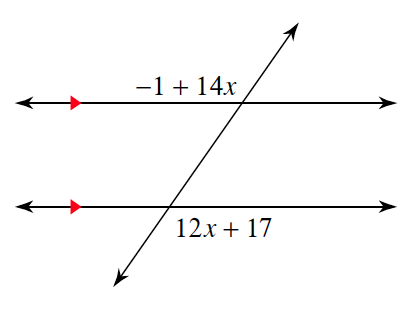
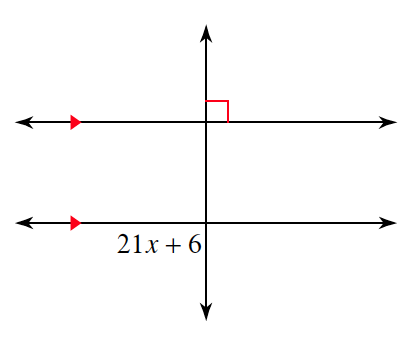
**Try one more!**





**Try a few more… this time with equations! Solve for x.**

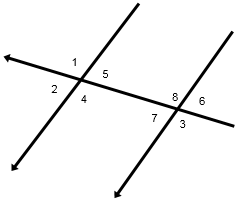




**Day 2: More Work with Proofs**

**Consecutive angles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

Which pairs of angles in the diagram are consecutive?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**THEOREM: If 2 lines are parallel, then consecutive angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

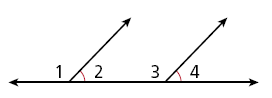
**CONVERSE: If consecutive angles are supplementary, then two lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**You try!** In the diagram above, and

Find.

**Let’s practice some more proofs!**

**Example 2:** Use what you know about angles to write a two-column proof.

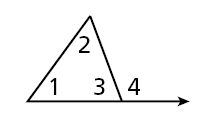


**Given:**

**Prove:**

**Statements Reasons**

**Try on your own!** Use what you know about angles to write a two-column proof.

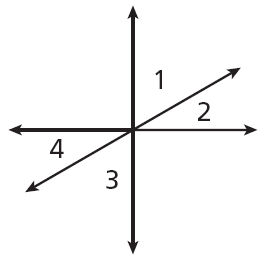


**Given:**

**Prove:**

**Statements Reasons**

**Try one more!** Use what you know about angles to write a two-column proof.



**Given:** and are complementary.

**Prove:** and are complementary.

**Statements Reasons**