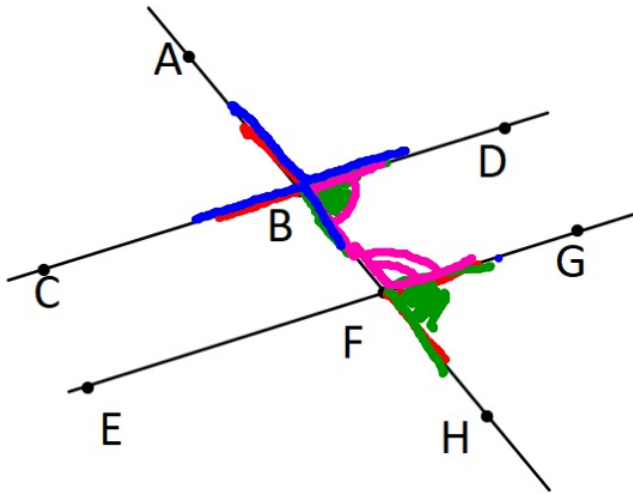


Good morning: attach warm up, then write/answer the q's



1. Name a pair of alternate exterior angles.

$\angle ABC, \angle GFB$

2. Name the angle corresponding to  $\angle HFG$

$\angle FBD$

3. Name a pair of same-side interior angles.

$\angle FBD, \angle GFB$

4. How many angles are congruent to  $\angle ABD$ ?

1

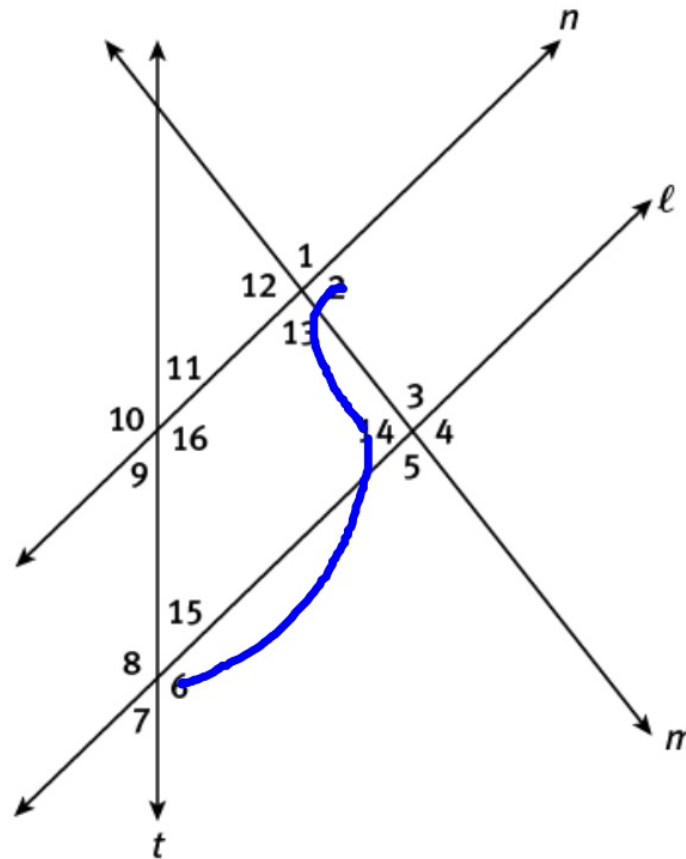
Reminders:

- retakes available in DS
- stamp revisions due by next Friday

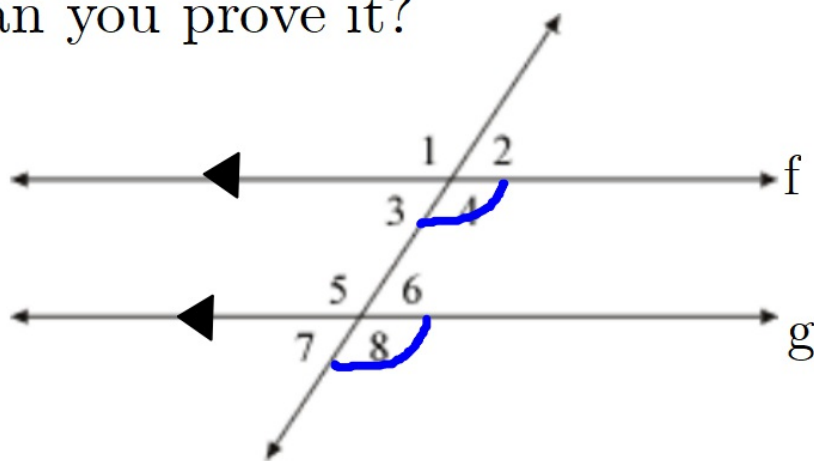
next assessment: Tuesday

## Homework p87

1.  $\angle 7, \angle 13$
2.  $\angle 2, \angle 6$
3.  $\angle 13, \angle 15$
4.  $120^\circ$
5.  $x=14, \angle 4=80^\circ$
6.  $75^\circ$
7.  $x=15, \angle 10=123^\circ$



Can you prove it?



Given:  $f \parallel g$

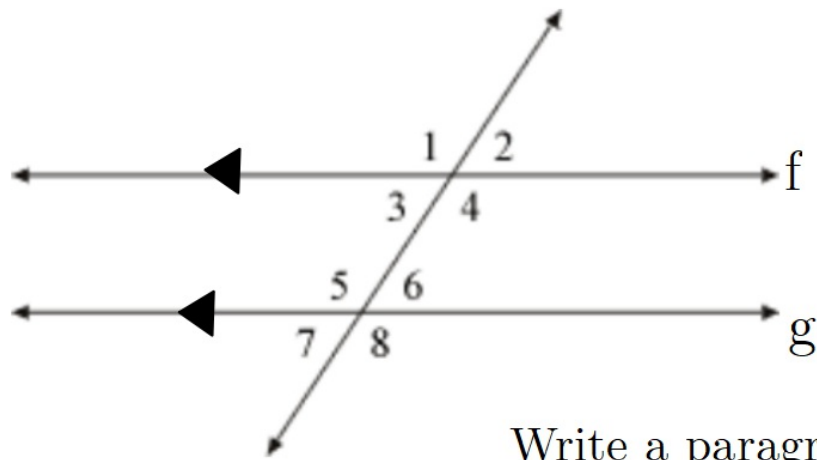
Prove:  $\angle 1 \cong \angle 8$

$$\begin{aligned} \angle 1 &\cong \angle 4 \text{ (Vertical Angles)} \\ \angle 4 &\cong \angle 8 \text{ (Alternate Exter. Angles)} \end{aligned}$$

Write a paragraph that proves why  $\angle 1$  is congruent to  $\angle 8$ .

$$\begin{aligned} \angle 1 &\cong \angle 4 \text{ (Vertical Angles)} \\ \angle 4 &\cong \angle 8 \text{ (Corresp. Angles)} \\ \Rightarrow \angle 1 &\cong \angle 8 \text{ (transitive)} \end{aligned}$$

## One more proof



Given:  $f \parallel g$

Prove:  $\angle 3$  and  $\angle 5$  are supplementary.

Write a paragraph showing why  $\angle 3$  and  $\angle 5$  are supplementary

*We are given parallel lines. We wish to prove same side interior angles like 3 and 5 are supplementary. We observe that  $\angle 1 + \angle 3 = 180$  because they make a line. Because they are corresponding,  $\angle 1 = \angle 5$  by assumption. Simply substitute  $\angle 5$  in place of  $\angle 1$  and you have  $\angle 5 + \angle 3 = 180$ . Since supplementary angles add to make 180,  $\angle 3$  and  $\angle 5$  are supplementary. Boom. Mic drop. Deal with it. (sunglasses emoji)*

What have we proven?

- if vertical angles, then congruent.
- if lines parallel, alternate interior angles congruent
- if lines parallel, alternate exterior angles congruent
- if lines parallel, same side interior angles supplementary

## Making Parallel Lines with Compass and Straight Edge

## Constructing Parallel Lines



Euclid's 5th postulate: Given a line and a point not on the line, there is only one line through the given point that is parallel to the given line.

Postulate from yesterday:

*Corresponding angles of parallel lines are congruent.*

OR: If two lines are parallel, then their corresponding angles are congruent. T

Is the converse true?  $P \rightarrow Q$  converse:  $Q \rightarrow P$  T

If their corresponding angles are congruent, then the two lines are parallel.

Biconditional Statement

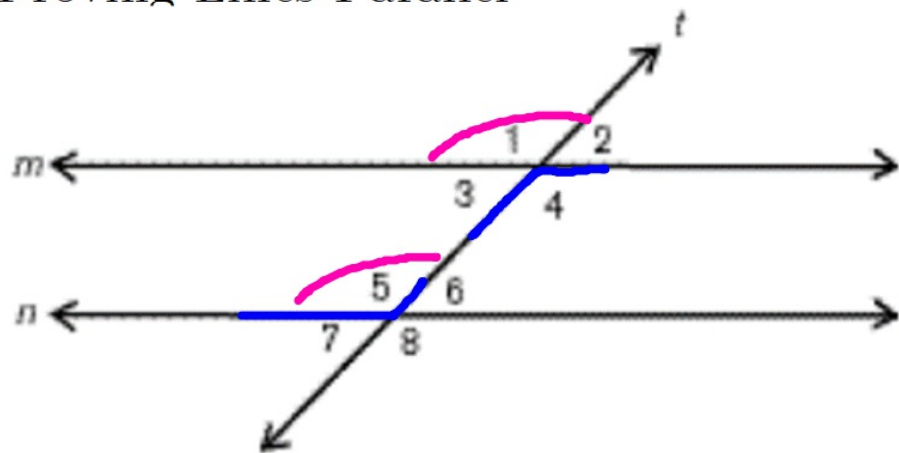
Corresp.  $\angle$ 's are  $\cong$  if and only if  
lines are //.



#tbt



## Proving Lines Parallel



Given:  $\angle 5 \cong \angle 4$

Prove:  $m \parallel n$

Write a paragraph explaining why lines  $m$  and  $n$  have to be parallel based on the given

$\angle 4 \cong \angle 5$  (given)  
 $\angle 4 \cong \angle 1$  (vertical)  
 $\angle 1 \cong \angle 5$  (transitive prop.)  
Since  $\angle 1$ ;  $\angle 5$  are corresp.  
and  $\cong$ ,  $m \parallel n$ .

## Homework

p. 36 #28-32

p. 87 #12-16

assessment Tuesday

