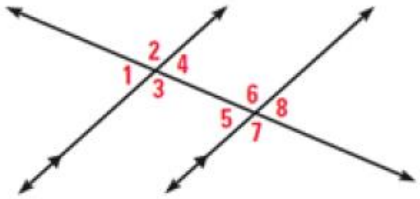
Parallel Lines and Angles …. Set 3 (without Answers)

1. List all pairs of angles that fit the description.



   a. Corresponding Angles

   b. Alternate Interior Angles

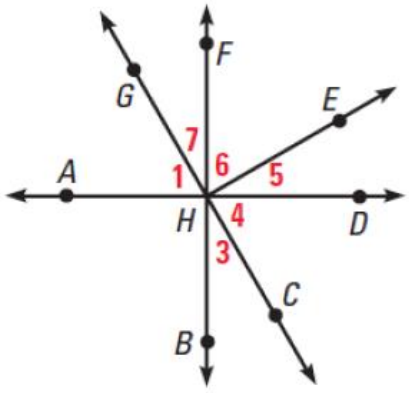
   c. Alternate Exterior Angles

   d. Interior Angles on the same side of the Transversal

   e. Exterior Angles on the same side of the Transversal

   f. Vertical Angles

2. **Given:** $m\angle EHC = m\angle DHB = m\angle AHB = 90°$



If $m\angle 7 = 28°$, then $m\angle 3 =$ ___?___.

If $m\angle EHB = 121°$, then $m\angle 7 =$ ___?___.

If $m\angle 3 = 34°$, then $m\angle 5 =$ ___?___.

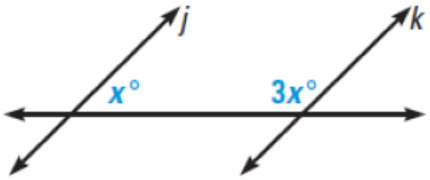
If $m\angle GHB = 158°$, then $m\angle FHC =$ ___?___.

If $m\angle 7 = 31°$, then $m\angle 6 =$ ___?___.

If $m\angle GHD = 119°$, then $m\angle 4 =$ ___?___.

3. Use what you know about parallel lines to complete this problem:

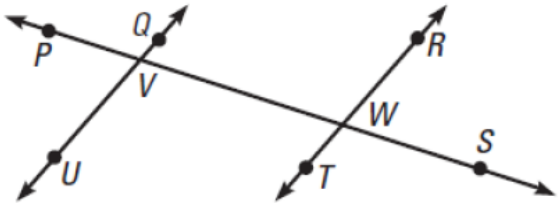
Find the value of x that makes $j \parallel k$. Which postulate or theorem about parallel lines supports your answer?



4. Complete the following in two column proof format.

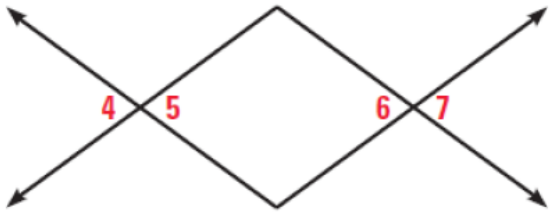
GIVEN ▶ $\angle QVW$ and $\angle RWV$ are supplementary

PROVE ▶ $\angle QVP \cong \angle RWV$

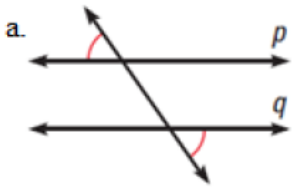


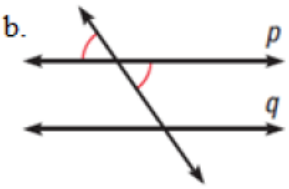
GIVEN ▶ $\angle 5 \cong \angle 6$

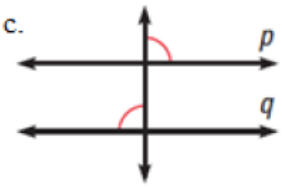
PROVE ▶ $\angle 4 \cong \angle 7$

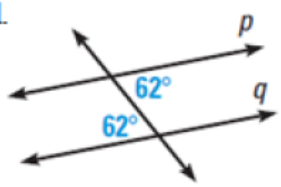


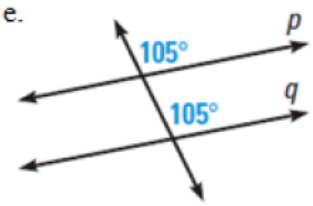
5. Using only the given angles, can you prove that lines p and q are parallel? If so describe how, if not, why not?

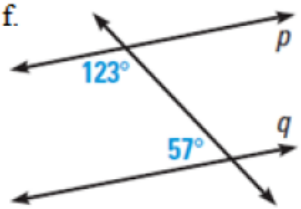
a. 

b. 

c. 

d. 

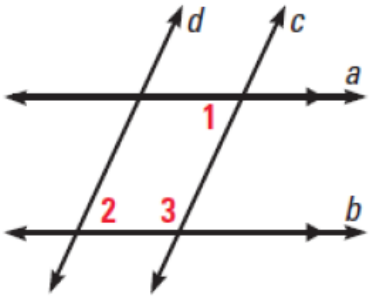
e. 

f. 

6. Use the converse of the parallel lines theorems to write a two-column proof for the following.

GIVEN ▶ $a \parallel b, \angle 1 \cong \angle 2$

PROVE ▶ $c \parallel d$



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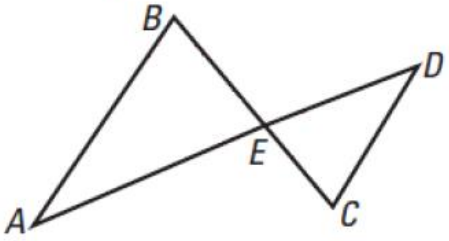
7. Complete the following questions using your knowledge of the parallel lines theorems and their converses.

a.

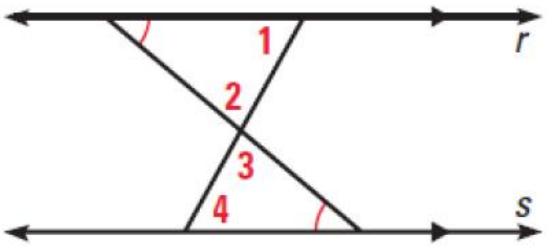
What can you prove about $\overline{AB}$ and $\overline{CD}$? Explain.



Given: Angle B is congruent to Angle BEA; Angle C is congruent to Angle CED

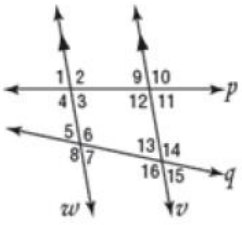
b.

What can you prove about $\angle 1$, $\angle 2$, $\angle 3$, and $\angle 4$? Explain.



8. Complete the following problem:

In the figure, $m\angle 9 = 80$ and $m\angle 5 = 68$. Find the measure of each angle. Tell which postulate(s) or theorem(s) you used.



a. $\angle 12$

b. $\angle 4$

c. $\angle 7$

d. $\angle 1$

e. $\angle 3$

f. $\angle 16$