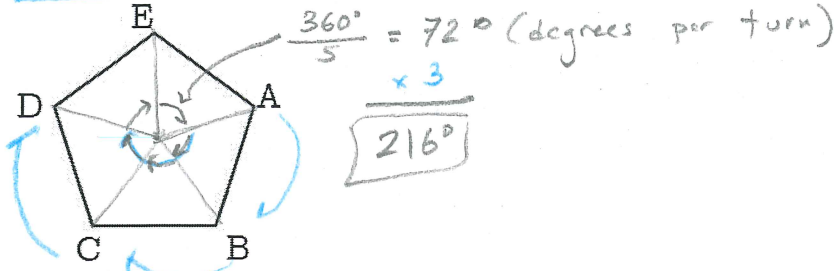


Congruence 1: Transformations:

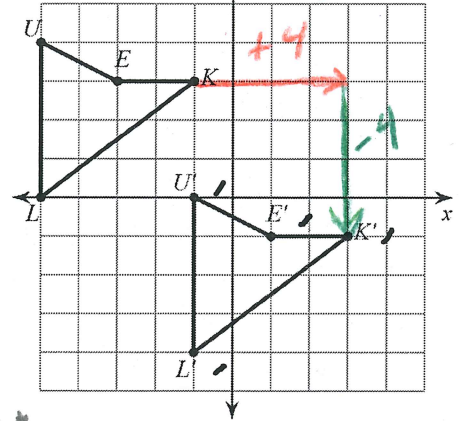
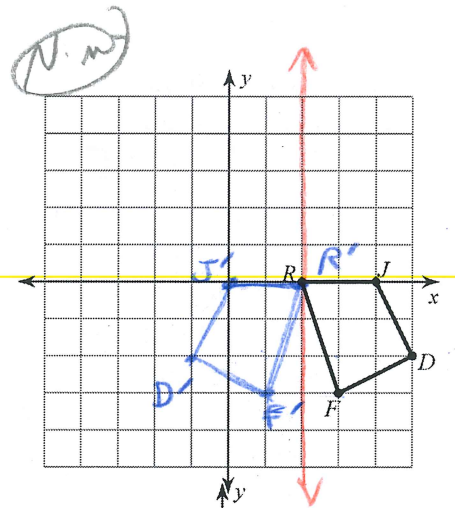
1. Draw and label the figure after a reflection across the line  $x=2$ .
2. Describe the term line segment in terms of points, lines, and planes.  
the portion of a line on a plane between two points.

3. How many degrees of clockwise rotation would it take for A to be carried onto D? (ABCDE is a regular pentagon.) 3 turns



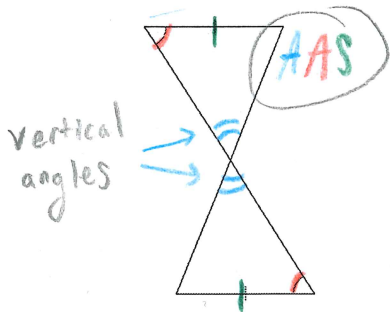
4. Use arrow notation to write a rule that will carry LUEK to L'U'E'K'.

$(x, y) \rightarrow (x + 4, y - 4)$   
right +      up +  
left -      down -

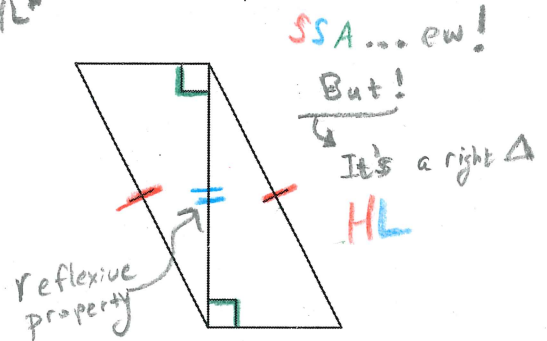
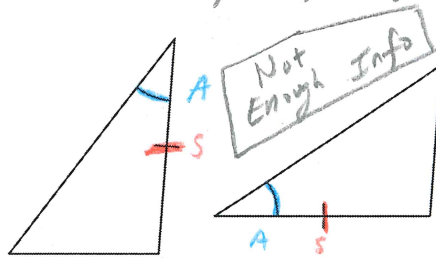


Congruence 2: Triangle Congruence

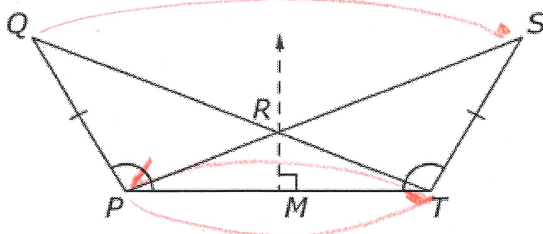
5. In each pair, are the triangles congruent? If so, what criteria is shown?



SSS, AAS, SAS, ASA, HL\*



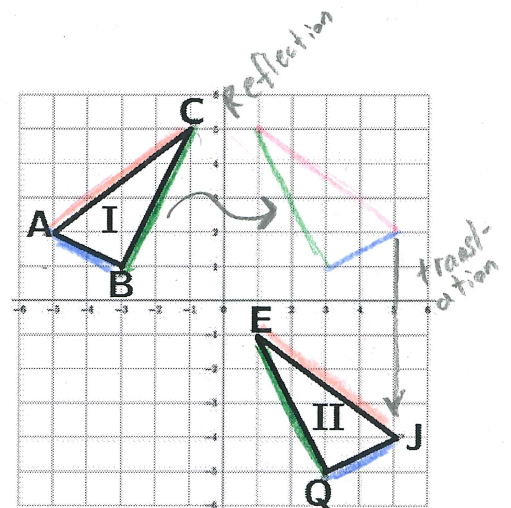
6. Which transformation(s) would show  $\Delta QTP \cong \Delta SPT$ ? Select all that apply.



- horizontal translation along the length PR
- horizontal translation along the length of PT
- reflection over RM
- reflection over SP
- rotation around R

7. Figure 1 goes through rigid transformations to become Figure 2. What segment is congruent to  $\overline{CA}$ ?

EJ



Same-side interior angles are supplementary

Congruence 3: Parallel Lines and Triangles

8. Name a pair of corresponding angles.  
 $\angle 1$  and  $\angle 5$   $\angle 3$  and  $\angle 7$ , etc.
9. Name a pair of alternate interior angles.  
 $\angle 3$  and  $\angle 6$  (or  $\angle 4$  and  $\angle 5$ )
10. If  $\angle 3 = 14x + 45$  and  $\angle 5 = 7x + 30$ , what is the value of  $x$ ?

$$14x + 45 + 7x + 30 = 180 \Rightarrow 21x + 75 = 180$$

$$-75 \quad -75$$

$$21x = 105$$

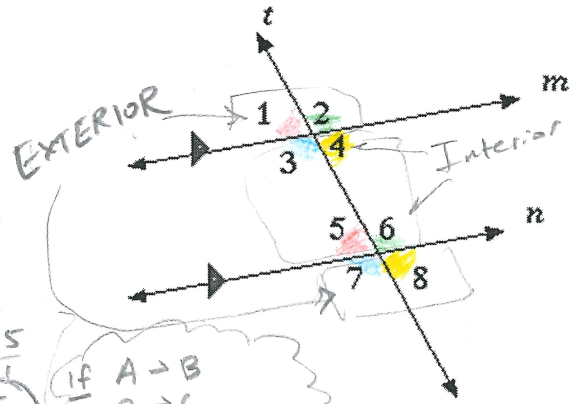
$$\div 21 \quad \div 21$$

$$x = 5$$

11. Complete the proof.

Given:  $m \parallel n$  Prove:  $\angle 3 \cong \angle 6$

Statements	Reasons
1. $m \parallel n$	1. Given
2. $\angle 3 \cong \angle 7$	2. Corresponding Angles
3. $\angle 7 \cong \angle 6$	3. vertical angles
4. $\angle 3 \cong \angle 6$	4. Substitution or



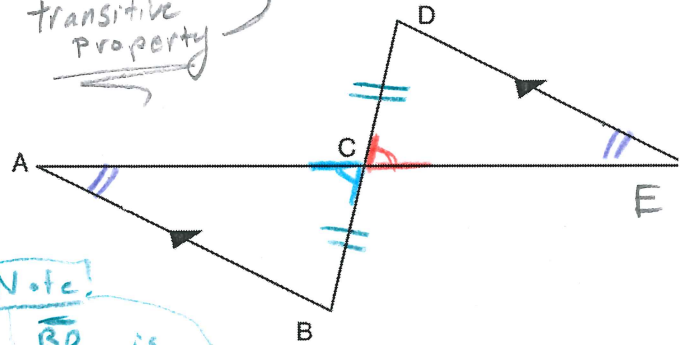
If  $A \rightarrow B$   
 $B \rightarrow C$   
 then:  $A \rightarrow C$

transitive property

12. Complete the proof.

Given:  $\overline{AE}$  bisects  $\overline{BD}$ ;  $\overline{AB} \parallel \overline{ED}$  Prove:  $\overline{AB} \cong \overline{ED}$

Statements	Reasons
1. $\overline{AE}$ bisects $\overline{BD}$ ; $\overline{AB} \parallel \overline{ED}$	1. Given
2. $\angle BCA \cong \angle DCE$	2. Vertical Angles
3. $\overline{DC} \cong \overline{BC}$	3. Def. of bisect
4. $\angle A \cong \angle E$	4. Alt. Interior Angles
5. $\triangle ACB \cong \triangle ECD$	5. AAS
6. $\overline{AB} \cong \overline{ED}$	6. CPCTC



Note:  $\overline{BD}$  is being cut in half (AE does the cutting)

Corresponding Parts of congruent triangles are congruent

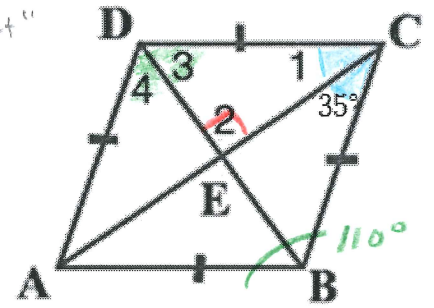
Congruence 4: Quadrilaterals

13. Consider rhombus DCBA with diagonals intersecting at E.

Find the angle measures

$\angle 1 = 35^\circ$   $\angle 2 = 90^\circ$   $\angle 3 = 55^\circ$

$\angle 4 = 55^\circ$   $\angle ABC = 110^\circ$



14. ABCD is a parallelogram. If  $BE = 11x - 15$ , and  $BD = 8x + 12$ , find the length of DE.

$$8x + 12 = 11x - 15 + 11x - 15$$

$$8x + 12 = 22x - 30$$

$$-8x \quad -8x$$

$$12 = 14x - 30$$

$$+30 \quad +30$$

$$42 = 14x$$

$$\div 14 \quad \div 14$$

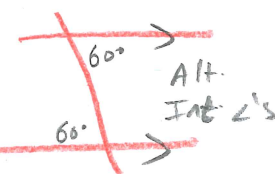
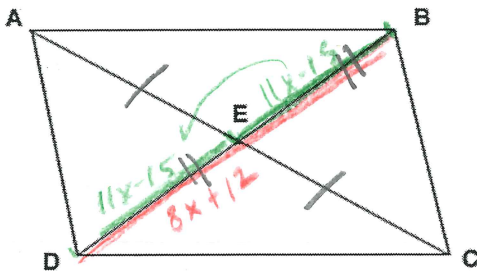
$$3 = x$$

$\overline{DE} \cong \overline{BE}, 5 =$

$$DE = 11(3) - 15$$

$$= 33 - 15$$

$$= 18$$



Alt. Int.  $\angle$ 's

$$60^\circ + ? = 180^\circ$$

$$? = 180^\circ - 60^\circ$$

$$? = 120^\circ$$

$$55^\circ + ? + 60^\circ = 180^\circ$$

$$? = 180^\circ - 115^\circ$$

$$? = 65^\circ$$

