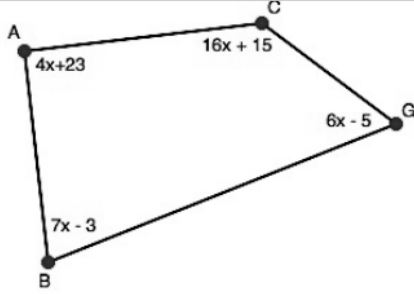


Questions on 5.5 HW?

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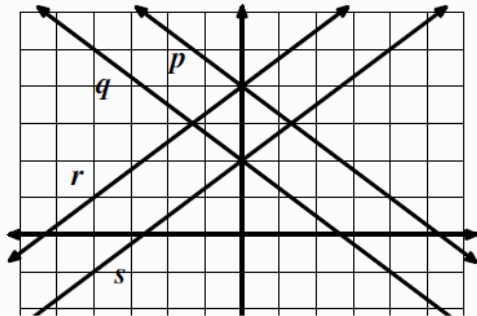


2. Find the measure of x in quadrilateral $ABGC$.

$$7x - 3 + 4x + 23 + 16x + 15 + 6x - 5 = 360$$

Match the equation with the correct line in the graph of lines p , q , r , and s .

- $y = \frac{3}{4}x + 2$
- $y = -\frac{3}{4}x + 2$
- $y = \frac{3}{4}x + 4$
- $y = -\frac{3}{4}x + 4$



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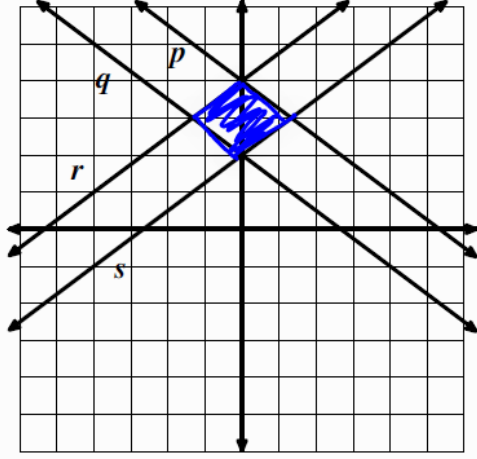
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Match the equation with the correct line in the graph of lines p , q , r , and s .

- $y = \frac{3}{4}x + 2$
- $y = -\frac{3}{4}x + 2$
- $y = \frac{3}{4}x + 4$
- $y = -\frac{3}{4}x + 4$
- Describe the shape made by the intersection of the 4 lines. List as many observations as you can about the shape and its features.



quadrilateral,
parallelogram,
rhombus

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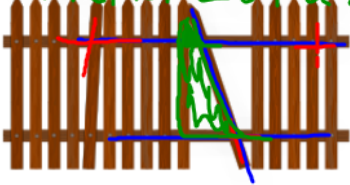

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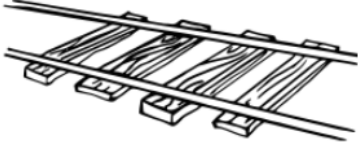
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Label each picture as showing *parallel lines with a transversal*, *vertical angles*, or an *exterior angle of a triangle*. Highlight the geometric feature you identified. Can you find all 3 features in 1 picture? Where?

8. 

9.  

11. 

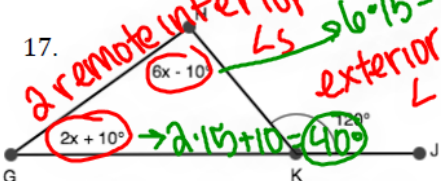
12. 

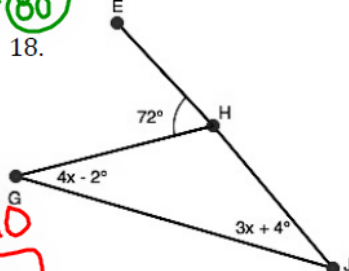
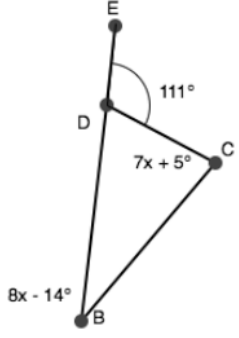
13. 

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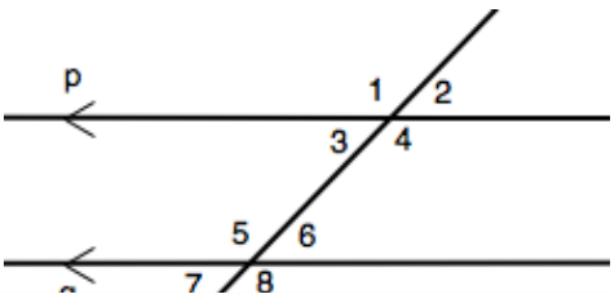
Find the value of the 2 remote interior angles in the figures below.

17. 
 2 remote interior \angle s $\rightarrow 6x - 10$ and $2x + 10$
 exterior \angle $\rightarrow 120^\circ$
 $120 = 6x - 10 + 2x + 10$
 $120 = 8x$ $\boxed{x = 15}$

18. 
 19. 

Indicate whether each pair of angles is congruent or supplementary by trusting how they look. Lines p and q are parallel.

20. $\angle 5$ and $\angle 8$
 21. $\angle 2$ and $\angle 6$
 22. $\angle 2$ and $\angle 8$
 23. $\angle 4$ and $\angle 6$
 24. $\angle 3$ and $\angle 5$



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Indicate whether each pair of angles is *congruent* or *supplementary* by trusting how they look. Lines p and q are parallel.

20. $\angle 5$ and $\angle 8$
21. $\angle 2$ and $\angle 6$
22. $\angle 2$ and $\angle 8$
23. $\angle 4$ and $\angle 6$
24. $\angle 3$ and $\angle 5$
25. $\angle 1$ and $\angle 3$

supplementary same side interior angles

Go

Topic: Complementary and supplementary angles.

Find the complement and the supplement of the given angles. It is possible for the complement or supplement not to exist.

26. 37°	27. 59°	28. 89°
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8.50 x 11.00 in

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Topic: Complementary and supplementary angles.

Find the complement and the supplement of the given angles. It is possible for the complement or supplement not to exist.

26. 37° 27. 59° 28. 89°

$\text{supp} = 180 - 37 = 143^\circ$

29. 111° 30. 3° 31. 90°

$\text{Comp} = 90 - 37 = 53^\circ$

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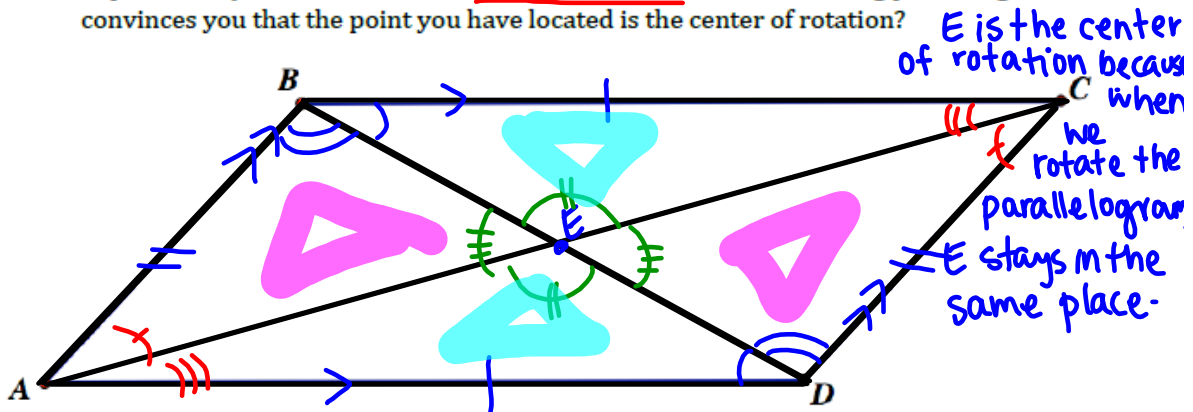
5.6 Parallelogram Conjectures and Proof

A Solidify Understanding Task

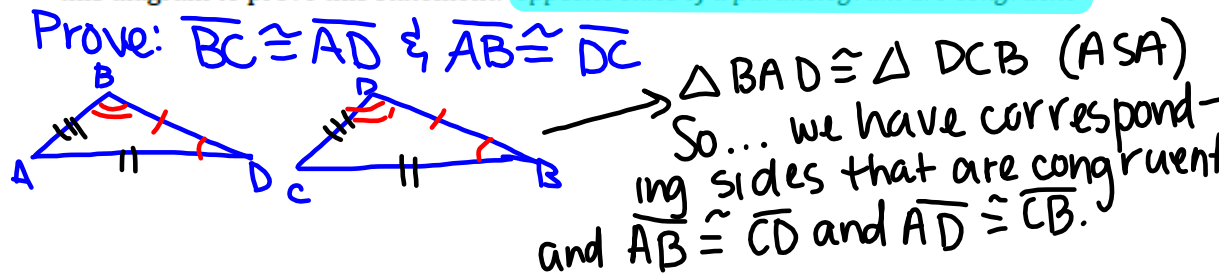


In Mathematics I you made conjectures about properties of parallelograms based on identifying lines of symmetry and rotational symmetry for various types of parallelograms. Now that we have additional knowledge about the angles formed when parallel lines are cut by a transversal, and we have criteria for convincing ourselves that two triangles are congruent, we can more formally prove some of the things we have noticed about parallelograms.

1. Explain how you would locate the center of rotation for the following parallelogram. What convinces you that the point you have located is the center of rotation?



2. If you haven't already, draw one or both of the diagonals in the above parallelogram. Use this diagram to prove this statement: opposite sides of a parallelogram are congruent



3. Use this diagram to prove this statement: opposite angles of a parallelogram are congruent

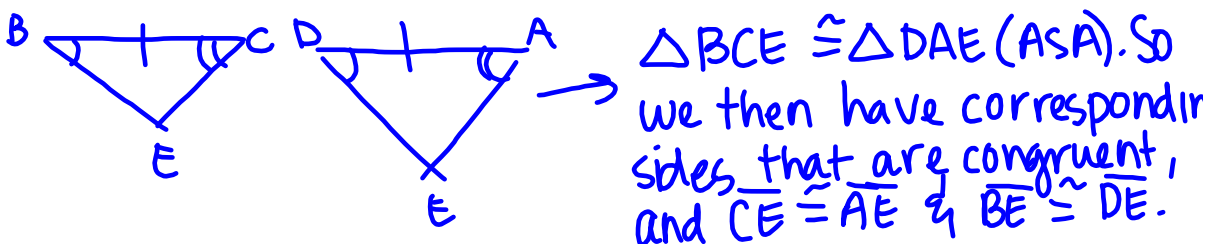
Prove: $\angle B \cong \angle D$ and $\angle A \cong \angle C$

↑
alternate interior \angle s \cong

↑
alternate interior \angle s \cong

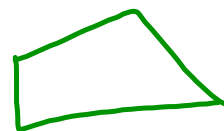
4. Use this diagram to prove this statement: the diagonals of a parallelogram bisect each other

Prove: $\overline{BE} \cong \overline{DE}$ and $\overline{AE} \cong \overline{CE}$



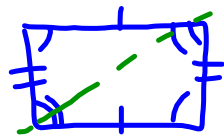
The statements we have proved above extend our knowledge of properties of all parallelograms: not only are the opposite sides parallel, they are also congruent; opposite angles are congruent; and the diagonals of a parallelogram bisect each other. A parallelogram has 180° rotational symmetry around the point of intersection of the diagonals—the center of rotation for the parallelogram.

5. Consider the following statements. If you think the statement is true, create a diagram and write a convincing argument to prove the statement.



- a. If opposite sides and angles of a quadrilateral are congruent, the quadrilateral is a parallelogram.

Draw a diagonal, then $SSS \Delta \cong$ and alternate interior $\angle s \cong$, so quadrilateral is a parallelogram.



- b. If opposite sides of a quadrilateral are congruent, the quadrilateral is a parallelogram.

Yes, same as above.

- c. If opposite angles of a quadrilateral are congruent, the quadrilateral is a parallelogram.

- d. If the diagonals of a quadrilateral bisect each other, the quadrilateral is a parallelogram.

Homework

Finish 5.6 "Ready, Set, Go"